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ABSTRACT

Forty-one papers on language research and linguistic theory from the annual conference address these topics: linguistic philosophy; aspects of phonetics and phonology; topics in syntax; aspect; topics in semantics; topics in discourse analysis; sociolinguistics and language contact; historical linguistics; metatheory; and interdisciplinary language research. Languages studied include Welsh, Bella Coola, Hungarian, Polish, English, Japanese, Korean, Old and Middle English; Spanish and Uto-Aztecan (Tarahumara). Selected papers include: (1) "The Meaning-Text Approach to the Study of Natural Language and Linguistic Functional Models" (Mel'chuk); (2) "The Organization and Production of Narrative" (Pu); (3) "The Invisible Consonants in 'Cynghanedd' Poetry" (Griffen); (4) "A Phonetic Basis for Cross-Language Patterns in Vowel Rounding" (Hogan); (5) "Discourse and the Making of Grammatical Particles" (Chen); (6) "Four Kinds of Aspect" (Hewson); (7) "'Some' as an Expression of Approximation in English: From Partitive to Approximative" (Duffley); (8) "Alternating Semantic Polarities" (Katz); (9) "Lexical Repetition and the Given/New Distinction in Written English" (Cummings); (10) "Expository Discourse Schema for Scholarly Electronic Messages" (Hwang); (11) "A Psycholinguistic Analysis of Code-Switching" (Belyayeva); (12) "The Reality of the Classification 'Poetry' for Old English" (Collins); and (13) "Verbal Metaphors and Nonverbal Metaphorics: What Can They Teach Us?" (Baider, Roman). (MSE)

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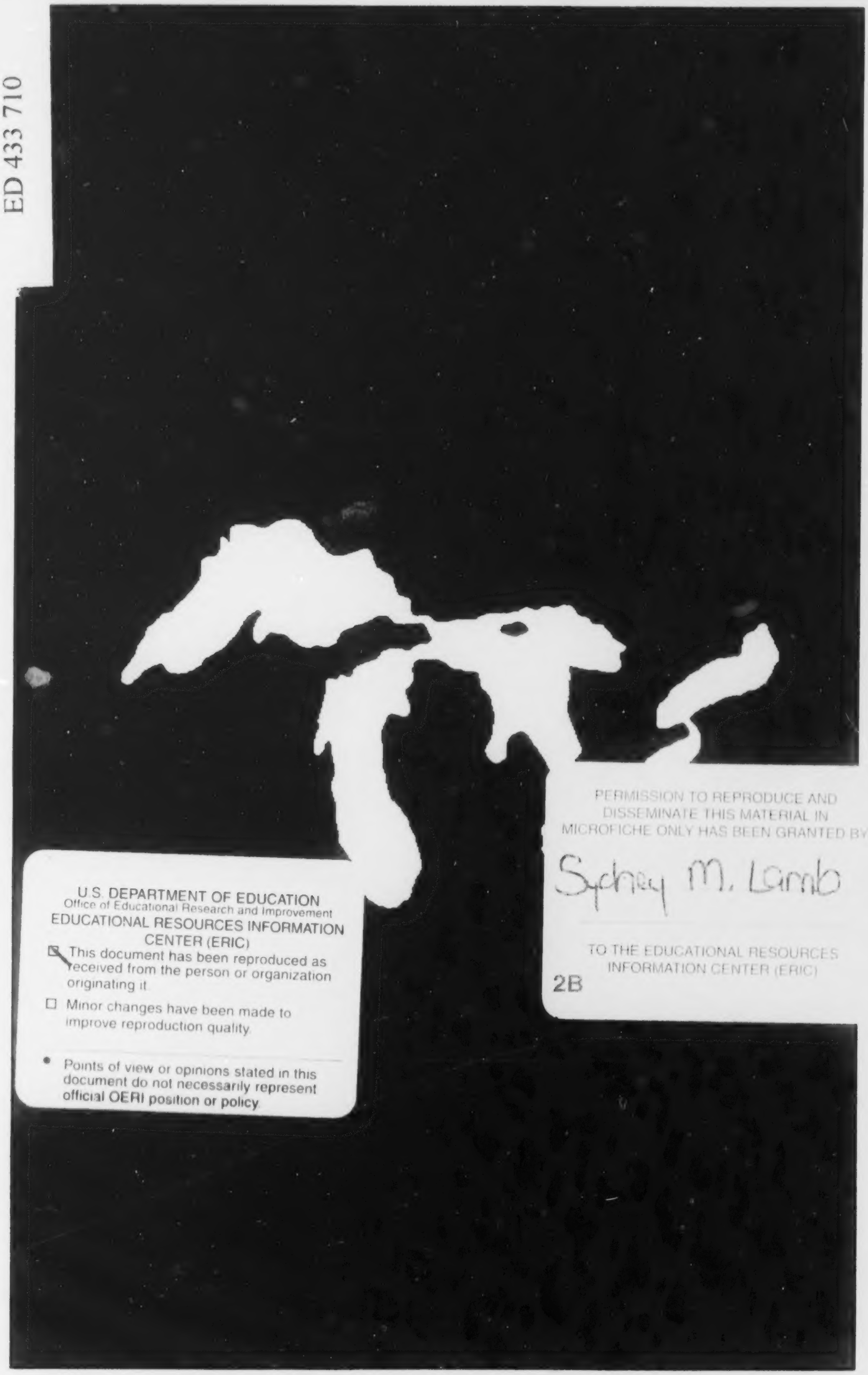

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LACUS FORUM XXIV

Toby D. Griffen

Series Editor

LACUS FORUM

XXIV

edited by Sheila Embleton

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PREFACE

Sheila Embleton
York University

The Twenty-Fourth Forum of the Linguistic Association of Canada and the United States (LACUS) was held at York University, Toronto, from July 29 to August 2, 1997. This is the fourth time that LACUS has met in Toronto, the third time at York University, and the second time on this campus of York University – all of which constitute LACUS records. We look forward to hosting another LACUS meeting at some point in the future!

Approximately half of the papers presented at the Forum are appearing in the present volume. Many of the papers have significant additions or revisions compared to their oral version, due to comments both at the Forum itself but also from the referees who subsequently read the written submissions. In addition to the referees, who I will not list by name here, I would especially like to thank Toby Griffen, who for the past number of years has functioned as the series editor of the LACUS Forum. To him falls the lion's share of the work – most of the correspondence with authors, referees, and the printing-house, but also all the electronic aspects of contemporary editing and production, including conversion of files from numerous different sources to a single unified format and wrestling with a myriad of different and exotic fonts. My job as volume editor in comparison seems quite small and almost insignificant. It was my good fortune to work with Toby this year; unfortunately for LACUS, this was his last year as series editor. My thanks also go to all those authors who cooperated in the timely publication of this volume by respecting deadlines and by responding promptly to requests from Toby or me.

LACUS has always had a tradition of diversity and eclecticism. This is evident to anybody attending a LACUS Forum, but becomes even more obvious to those charged with grouping presentations into coherent sessions at the conference, and yet more so to the editor when trying to chose a logical order for papers to appear in the Forum volume. I have chosen to place the special and prize-winning lectures first, followed by eight fairly loosely defined subject groupings. The groupings may appear rather "traditional" for some people's tastes, but I did this in order to make it as easy as possible for readers to find papers which relate to particular topics. Many papers, however, touch on several areas, and could equally well have been placed in another grouping. I apologize in advance to any authors who feel that I have misplaced their papers. There is another way in which LACUS has become more diverse in more recent years; despite its name, there is increasing number of participants from outside Canada and the United States. This year we welcomed participants from approximately 20 countries in total.

Another worthy LACUS tradition is the warm welcome it extends to young scholars. This is more formally recognized by the awarding of the Presidents' prizes. These are prizes for the two papers judged to be the most significant contribution to linguistic knowledge presented by an author who does not yet have faculty tenure, one in the predoctoral category and one in the postdoctoral category. The judging panel consists of the current LACUS President and all former Presidents in attendance at the meeting. This year's Presidents' Predoctoral Prize was awarded to Aneta Pavlenko, with commendations to Patrick André Mather and Tomiko Kodama; the Presidents' Postdoctoral Prize was awarded to Ming-Ming Pu.

My sincere thanks go to Ruth Brend, Chair of the Conference Committee, who coordinated the Forum's scientific program and helped with many of the organizational details of the conference, both beforehand and on-site. Many details of the local organization immediately before and during the conference were ably handled by Wolfgang Ahrens. When an unusual constellation of York administrative matters precluded my attendance other than sporadically for much of the conference, he stepped in and assumed many of my responsibilities during the conference week as well. Art Clabby of the York University Faculty Club not only provided excellent service at all our coffee breaks, opening reception, and banquet, but also managed, on two hours notice and the day immediately before his annual two-week closure, to feed both breakfast and lunch to all the delegates when other campus facilities unexpectedly closed, contrary to the assurances we had received, on the Saturday before the Simcoe Day holiday. When David Lockwood was unable to attend the conference and hence there was suddenly no presidential address at the banquet, half a dozen or so people stepped in and provided entertainment, proving once again that linguists are a multi-talented bunch! The highlight of that evening for me was Syd Lamb's rendition of "Blueberry Hill", with words specially composed in honor of delegates' favorite watering-hole at York University. Michael Stevenson, Vice-President (Academic Affairs) and Provost, and at the time also Acting President of York University, took time out of his unbelievably crowded schedule to officially welcome delegates to York University at our Inaugural Session the first evening. Financial subsidies and some logistical support for the Forum were provided by the Faculty of Arts and the Faculty of Graduate Studies at York University.

I

SPECIAL LECTURES

INVITED LECTURE

THE MEANING-TEXT APPROACH TO THE STUDY OF NATURAL LANGUAGE AND LINGUISTIC FUNCTIONAL MODELS

Igor A. Mel'čuk
University of Montreal, Montreal, Canada

What follows is a very condensed presentation of an approach to the study and description of natural languages—an approach which the author has been developing for more than 30 years now. This presentation will of necessity be extremely sketchy; it has the form of a series of (slightly dogmatic) statements, without sufficient explanations. I hope, however, that examples and a short bibliography at the end of the paper will help the reader to follow.

1. General Characterization of the Proposed Approach

A description of a natural language $\mathcal{L}$ must, I think, aim at representing WHAT SPEAKERS NORMALLY DO: expressing meanings via texts and extracting meanings from texts. Therefore, the device proposed as a major tool for linguistic description is nothing else but a set of rules that establish the correspondence between meanings that the speaker wants to express and the texts he/she produces to this effect. In more technical terms, such a description, called a linguistic MODEL of $\mathcal{L}$, ensures meaning-to-text and text-to-meaning transitions; that is, this model specifies the mapping between an infinite but denumerable set of possible Sem(antic) R(epresentation)s of language $\mathcal{L}$ and an equally infinite but also denumerable set of possible Phon(etic) R(epresentation)s of the same language. Roughly speaking, the central slogan of my approach is:

From a Sem **network** – to all corresponding Deep-Syntactic and Surface-Syntactic **trees** – to all corresponding Deep-Morphological and Surface-Morphological **strings** – to all corresponding Phonemic and then Phonetic **strings!**

Symbolically:

(1) $\{\text{Meanings}_i = \text{SemR}_i\} \Leftrightarrow \{\text{Texts}_j = \text{PhonR}_j\} \mid i \neq j,\ 0 \leq i, j < \infty$,
where the two-headed double arrow represents a linguistic model (i.e. the language).

This approach is called the Meaning-Text Theory [= MTT]; the linguistic model it puts forward is called the Meaning-Text Model [= MTM]. An MTM of a language $\mathcal{L}$ is a functional model in two senses of the word *functional*: it models only the FUNCTIONING of $\mathcal{L}$ (rather than its real structure in the brain), and it is presented itself as a FUNCTION from meanings to texts or from texts to meanings.

2. Six Main Properties of the MTT

- The MTT is SEMANTICALLY BASED: its starting point is Semantic Representation written in a special semantic metalanguage.
- The MTT pursues the VIEWPOINT OF THE SPEAKER, rather than that of the addressee; therefore it concentrates on text production rather than on understanding. (Text production is considered to be a more linguistic task than text understanding, which requires a huge amount of extralinguistic knowledge and abilities.)
- The MTT aims at strict SEPARATION OF LINGUISTIC LEVELS, especially of those of semantics and syntax. As a result, it is consistently stratificational (in the sense of S. Lamb): it supposes seven levels of linguistic representation (= R):

(2)

Sem(antic)R ⇔ Deep-SyntacticR ⇔ Surface-SyntacticR ⇔ Deep-MorphologicalR
⇔ Surface-MorphologicalR ⇔ Deep-PhonologicalR ⇔ Surface-PhonologicalR

In conformity with these levels, the model comprises six components, or MODULES, that establish correspondences between the Rs of adjacent levels:

Semantics—Deep Syntax—Surface Syntax—Deep Morphology—
Surface Morphology—Deep Phonology

(Surface Phonology, or Phonetics, which establishes the correspondence between the Surface-Phonological [i.e. Phonetic] Representation and actual sounds, is situated outside the MTM.)

These modules are represented in (2) by two-headed double arrows relating two adjacent representations.

The modules of the MTT are independent of each other, the interface between two subsequent modules being their common utterance representation. Thus, the Deep-Syntactic module establishes the correspondences between Semantic and

Deep-Syntactic Representations, the Surface-Syntactic one—between Deep-Syntactic and Surface-Syntactic Representations, and so forth. The DSyntR is the common utterance representation for the Semantic module (being its 'ceiling') and for the Deep-Syntactic module (being its 'floor').

The stratificational character and high modularity are necessary for an MTM in order for it to be able to cope with the extreme complexity of natural language.

- The MTT puts strong EMPHASIS ON THE LEXICON: it proposes a special dictionary, known as the *Explanatory Combinatorial Dictionary* [= ECD]. This is a highly formalized dictionary, geared to generation, i.e. a SYNTHESIS (= active) dictionary.
- The MTT uses DEPENDENCIES (semantic, syntactic and morphological) as its main formalism (rather than constituency).
- The MTT is TRANSDUCTIVE AND EQUATIVE (rather than generative and transformational): in their actual speech behavior, humans do not generate sentences nor transform some entities into other entities. What they do is, as stated above, to translate meanings into texts and vice versa.

3. Semantic Representation

Within the MTT, MEANING is considered as purely linguistic meaning, i.e. as an invariant of more or less synonymous paraphrases. It is formally represented by labeled semantic networks based on the formalism of predicate calculus, supplied with indication of the communicative organization of the meaning represented. (The MTT presupposes as well a deeper representation of text content, which underlies the SemR: namely, the Concept(ual) R(epresentation)—prelinguistic organization of the contents of the text to be produced. However, given its non-linguistic character, the ConceptR will not occupy us here.)

A *Semantic Representation* is a set of three formal objects called structures:

SemR = <Semantic Structure, Semantic-Communicative Structure,
Rhetorical Structure>.

Each of these structures represents one aspect of an utterance's meaning: Semantic Structure (= semantic network) takes care of its propositional, or situational, meaning; Semantic-Communicative Structure deals with the organization of the message (Rheme *vs.* Theme, Given *vs.* New, Foregrounded *vs.* Non-Foregrounded, etc.); and Rhetorical Structure specifies the 'artistic' intentions of the speaker (irony, pathos, official style, etc.).

A SemR represents the common meaning of a set of (near-)paraphrases, as, for instance, (3)—see below.

This set represents the meaning of approximately

$$8 \times 9 \times 4 \times 6 \times 3 \times 2 \times 3 \times 3 \times 3 \times 2 \times 4 \times 4 = 8{,}957{,}952,$$

i.e. almost 9 million sentences! Here are three examples:

(4) a. *"What has been discovered clearly indicates that the achievements which created the most sophisticated pre-Columbian society may have occurred much earlier than was previously hypothesized," Richard Hansen said.*

b. *According to Richard Hansen, the objects found lend strong support to the view that the progress which produced the most advanced pre-Columbian society had probably taken place much before what was previously assumed.*

c. *In the words of Richard Hansen, the find convincingly demonstrates that the advances that lead to the most developed pre-Columbian society may have taken place a long time before the date that was previously assumed.*

It is for such paraphrase sets that Sem(antic) S(tructures) are written: a SemS is supposed to capture the common propositional meaning of all the sentences in the set.

A Sample Semantic Structure

Consider the sentence (5a) and its paraphrase (5b):

(5) a. *"We archaeologists experienced the same challenges in excavating the site that the Mayans must have encountered when they built Nakbe," Hansen said.*

b. *In Hansen's words, difficulties/problems/challenges which had faced him and other archeologists excavating the site were similar to those which Mayans certainly had met with when erecting Nakbe.*

Their common meaning, as well as that of all the other possible paraphrases can be represented by the SemS in (6) (see below).

The Deep-Syntactic module of the MTM takes this Sem-structure and—under the control of other components of the SemR—constructs for it the corresponding Deep-Syntactic Structure.

4. Deep-Syntactic Representation

The MTT considers the syntactic organization of a sentence on two different levels: Deep and Surface. The DSynt-Structure is geared to meaning and tries to reflect all syntactic properties of the sentences that serve to express its meaning; the SSynt-Structure is geared to the surface form and tries to express all syntactic properties that are relevant to word order, agreement, government, the choice of structural words, etc. In what follows, only the DSyntS will be presented.

(3) A Sample Set of (Nearly-Synonymous) Paraphrases

This find *This discovery* *What has been* $\left\{\begin{array}{l}\textit{found}\\ \textit{discovered}\end{array}\right\}$ *The* $\left\{\begin{array}{l}\textit{things}\\ \textit{objects}\end{array}\right\}$ $\left\{\begin{array}{l}\textit{found}\\ \textit{discovered}\end{array}\right\}$ $\boxed{8}$	*convincingly demonstrate(s)* *lend(s)strong support to the view* *strongly supports* *clearly* $\left\{\begin{array}{l}\textit{show(s)}\\ \textit{indicate(s)}\end{array}\right\}$ $\left\{\begin{array}{l}\textit{give(s)}\\ \textit{supply(ies}\end{array}\right\}$ $\left\{\begin{array}{l}\textit{clear indication}\\ \textit{convincing arguments}\end{array}\right\}$ $\boxed{9}$
that $\left\{\begin{array}{l}\textit{the achievements}\\ \textit{the progress}\\ \textit{the developments}\\ \textit{the advances}\end{array}\right\}$ $\boxed{4}$	$\left\{\begin{array}{l}\textit{which}\\ \textit{that}\end{array}\right\}$ $\left\{\begin{array}{l}\textit{produced}\\ \textit{created}\\ \textit{lead to}\end{array}\right\}$ $\boxed{6}$
the most sophisticated *the most advanced* *the most developed* $\boxed{3}$	*pre-Columbian Society*
may have *has/have probably* $\boxed{2}$	*occurred* *taken place* *happened* $\boxed{3}$
much earlier than *long time before* *much before* $\boxed{3}$	*the date that /which was* *(what)was* $\boxed{3}$
before *previously* $\boxed{2}$	*assumed* *believed* *hypothecized* *thought* $\boxed{4}$
as said Richard Hansen *according to Richard Hansen* *in the words of Richard Hansen* *Richard Hansen said* $\boxed{4}$	

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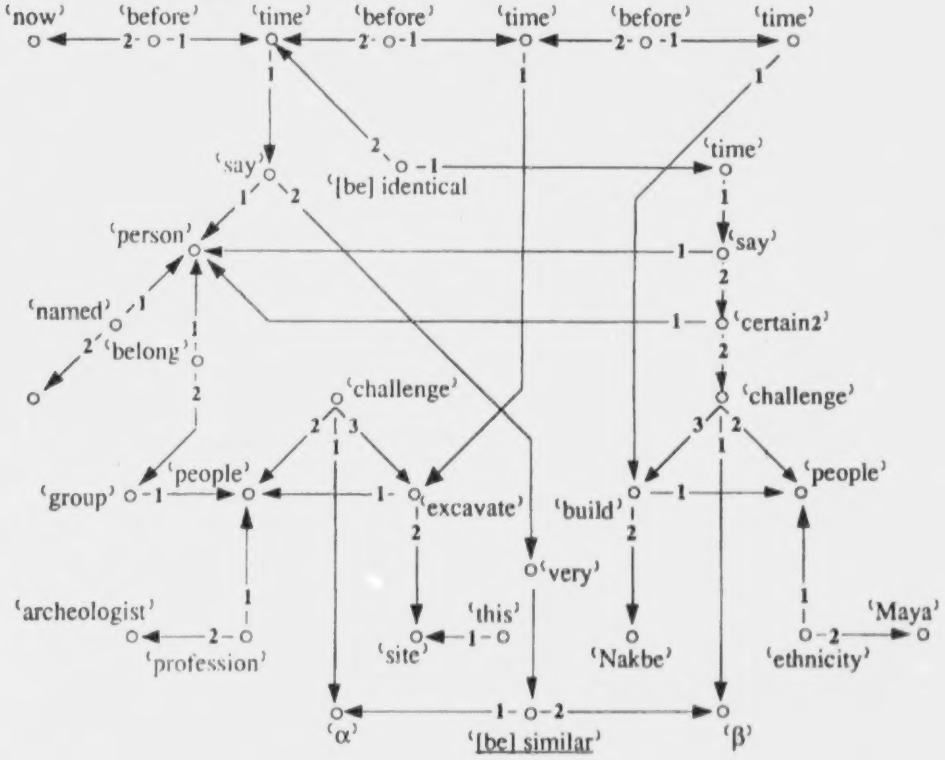
A *Deep-Syntactic Representation* is a set of four formal objects called structures:

DSyntR = <DSynt-Structure, DSynt-Communicative Structure,
DSynt-Anaphoric Structure, DSynt-Prosodic Structure>.

Each of these structures represents one aspect of a sentence's organization: DSynt-Structure expresses the arrangement of its words; DSynt-Communicative Structure deals with the organization of the sentence as a message; the DSynt-Anaphoric Structure specifies anaphoric and similar relations; and the DSynt-Prosodic Structure stores the data about prosodies that are not induced syntactically. An example of a Deep-Syntactic Structure is given in (7) below.

The transition between SemRs and Deep-SyntRs is the task of the Semantic module of the MTM.

(6) The Semantic Structure of sentences in (5):



'now'
'before'
'time'
'before'
'time'
'before'
'time'
'say'
'[be] identical'
'time'
'person'
'say'
'named'
'belong'
'certain2'
'challenge'
'challenge'
'group'
'people'
'excavate'
'build'
'people'
'very'
'archeologist'
'this'
'Maya'
'profession'
'site'
'Nakbe'
'ethnicity'
'α'
'[be] similar'
'β'

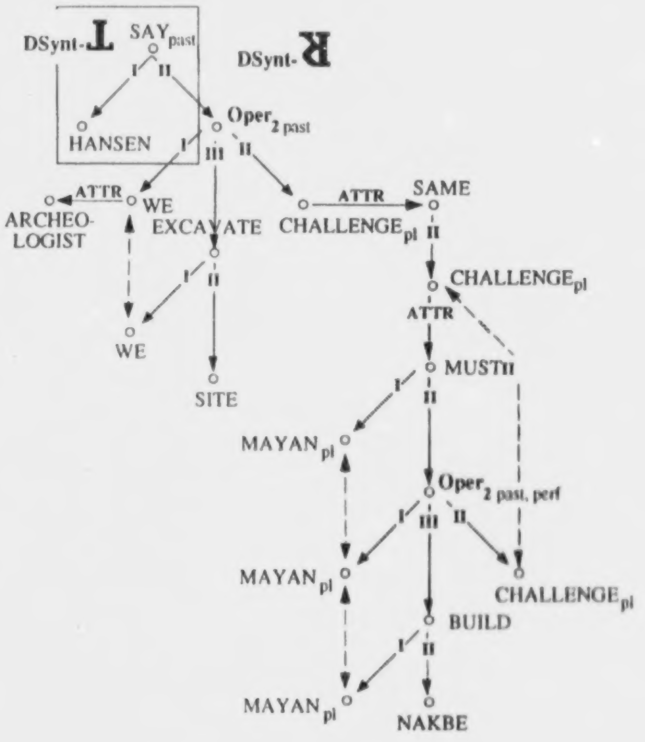
[A node of a SemS is labeled with a semanteme of English (in semantic quotes)—a disambiguated lexical meaning, i.e. a lexicographic sense of a lexical unit. An arc shows the predicate-argument relation; the number on it identifies the particular argument: thus, e.g., the first argument of 'say' is 'person' ('named Hansen'), while the second argument of 'say' is 'be very similar) (≈ 'Hansen says that a and b are very similar'). The underscoring indicates the communicatively dominant node.]

5. The Semantic Module of the MTM

The task of the Semantic Module of the MTM is the transition from the SemS of a sentence to its DSynt R; in particular, the Semantic Module ensures the construction of the DSyntS of the sentence to be. Sentence (5a) has, for instance, the DSyntS in (7).

A Sample Deep-Syntactic Structure

(7) The DSyntS of sentence (5a), with partial specification of the DSynt-Communicative Structure


DSynt-⊥
SAY$_{past}$
DSynt-Я
I
II
Oper$_{2\ past}$
HANSEN
I
III
II
ATTR
WE
ARCHEO-LOGIST
EXCAVATE
ATTR
SAME
CHALLENGE$_{pl}$
II
I
II
CHALLENGE$_{pl}$
ATTR
WE
SITE
MUSTII
I
II
MAYAN$_{pl}$
Oper$_{2\ past,\ perf}$
I
III
II
MAYAN$_{pl}$
CHALLENGE$_{pl}$
BUILD
I
II
MAYAN$_{pl}$
NAKBE

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[A DSyntS is a dependency tree whose nodes are labeled with full lexemes[1] of the sentence and the branches—with symbols of Deep-Synt-relations: six actantial (**I, II**, ..., **IV**) ones, two attributive, coordinative and appenditive. Symbols Dsynt- inverted **T** and Dsynt-inverted **R** stand for Deep-Syntactic Theme and Rheme (elements of the DSynt-Communicative Structure); dotted arrows represent anaphoric (= coreference) links, which are part of the DsyntS.]

The central element of the semantic module of a Meaning-Text model involved in the transition between a SemR and the corresponding DSyntR is a dictionary of a particular type: an ***Explanatory Combinatorial Dictionary*** [= ECD]. The object and the content of an ECD entry is a LEXICAL UNIT—a word or a set phrase in one well-defined sense.

An extremely fine sense discrimination is the slogan of the ECD.

Six main properties of an ECD:

- An ECD is elaborated WITHIN A COHERENT LINGUISTIC THEORY: the Meaning-Text theory, featuring well-developed semantic and syntactic modules, with a strong emphasis on the lexicon.
- An ECD is consistently geared to GENERATION: it is an active dictionary.
- An ECD is SEMANTICS-ORIENTED.
- An ECD is CENTERED ON LEXICAL COMBINATORICS (= it is a dictionary of collocations; cf. Lexical Functions below).
- An ECD is a FORMALIZED dictionary (= a lexical database).
- An ECD is EXHAUSTIVE with respect to the description of one lexical unit.

See Mel'čuk *et al.* 1984, 1988, 1992, Mel'čuk and Zholkovsky 1984, Mel'čuk *et al.* 1995.

6. The Structure of an ECD Entry: The Three Main Zones

Let us consider an ECD entry for the lexical unit L; L is thus the headword of this lexical entry.

SEMANTIC zone: the *Definition* of L (its SemR), which is based on a propositional form with variables for semantic actants of L and constitutes a strict decomposition of L's meaning. For instance, the verb [*to*] HELP (in one of several senses):

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[1] Including the Lexical Functions, such as **Oper$_2$** (see below). Structural, or grammatical, lexemes—such as, e.g., governed prepositions or auxiliary verbs—are not represented in the DSyntS: they are computed by the DSynt-rules and introduced in the SSyntS.

X helps Y to Z with W = ‘Y trying to do or doing Z,|| X uses X's resources W, adding W to Y's efforts with the goal that W facilitate for Y doing Z’.

NB: Note the presupposition to the left of || !

SYNTACTIC zone: the *Government Pattern* (= a subcategorization frame), which specifies, for each Sem-actant of L, the corresponding DSynt-actant and lists all surface means of expressing it in the text. The Government Pattern is supplied with constraints that specify semantic conditions on the choice of particular surface expressions of L's actants, as well as on their cooccurrence and incompatibility. Cf. for the verb [*to*] HELP:

Government Pattern

X = I	Y = II	Z = III	W = IV
1. N	1. N	1. V_{inf} 2. *to* V_{inf} 3. *with* N 4. $PREP_{dir}$ N	1. *with* N 2. *by* N 3. *by* V_{ger}

1) $C_{III\,1}$: ‘X being directly involved in Z’ [= ‘X doing Z himself’] [C stands for *column*]

2) $C_{III\,2}$: ‘X not being directly involved in Z’ [= ‘X not doing Z himself, but provides some resources to Y’]

3) $C_{III\,4}$: Z = ‘move $PREP_{dir}$ N’ [$PREP_{dir}$ stands for ‘directional preposition’]

Frederique helped the old gentleman finish his preparations <helped the boy to finish his studies with her generous financial assistance, helped Jack out of his coat, helped Jack up the stairs by a kick in the bottom /by pushing him hard>.

LEXICAL COOCCURRENCE zone: *Lexical Functions*, which present the whole of restricted lexical cooccurrence of L. Roughly speaking, a Lexical Function [= LF] is a very general and abstract meaning which can be expressed in a large variety of ways depending on the headword (= the argument of the function), for instance:

Magn(*naked*) = *stark* **Oper**$_1$(*sovereignty*) = *have* [~]
Real$_2$(*joke*) = *get* [ART ~]
Magn(*thin*) = *as a rake* **Oper**$_1$(*cry*) = *let out* [ART ~]
Real$_2$(*demands*) = *meet* [~]
Magn(*patience*) = *infinite* **Oper**$_1$(*whack*) = *fetch* [*a* ~]
Real$_2$(*exam*) = *pass* [ART ~]
Magn(*rely*) = *heavily* **Oper**$_1$(*support*) = *lend* [~]
Real$_2$(*hint*) = *take* [ART ~]

LFs can be classified from different viewpoints; without having a scientific impact on the issue, such classifications facilitate the task of the user and thus possess pedagogical value.

- Paradigmatic *vs.* syntagmatic LFs. Paradigmatic LFs deal with SELECTION; they are aimed at answering questions of the type "What do you call an object <a situation> X, related to Y?" – while speaking of X rather than of Y. Syntagmatic LFs deal with COMBINATION; they are aimed at answering questions of the type "What do you call the action <characteristics, attribute, etc.> X of Y?"—while speaking of Y rather than of X.
- Standard *vs.* non-standard LFs are different, first of all, with respect to the number of their possible keywords and value elements. Another important difference is that standard LFs participate in synonymic paraphrasing while non-standard ones do not (see Mel'čuk 1992b).
- 10 semantic/syntactic groups of Simple Standard LFs can be distinguished, based on the meaning and the DSynt-role associated with the given LF:

Basic LFs: **Syn**(onym), **Anti** [= antonym], and **Conv**(ersive)$_{ij}$. They embody the main semantic relations that play a special role in the MT-Theory—synonymy, negation, and converseness (*X precedes Y* ~ *Y follows X*). Since they are relatively well known, I will not discuss them here, except to say that **Syn**, **Anti** and **Conv**$_{ij}$ can be semantically exact or approximate, i.e. they can have a richer ($_{\supset}$), poorer ($_{\subset}$), or intersecting ($_{\cap}$) meaning; in this case, they are quasi-synonyms, quasi-antonyms, and quasi-conversives. The same subscripts are also used for other Lfs.

Derivative LFs are of two subtypes:

Syntactic derivatives represent nominalization **S**$_0$ (*rejection* for REJECT, beauty for BEAUTIFUL), adjectivalization **A**$_0$ (*urban* from CITY, *solar* for SUN), verbalization **V**$_0$ ([*to*] *attack* from [*the*] ATTACK, [*to*] *despise* for CONTEMPT), and adverbialization **Adv**$_0$ (*well* for GOOD, *fast* for HIGH SPEED); **Pred** is a combination of a meaning with the copula; thus **PredMagn**(*animosity*) = *runs rampant*.

Semantic derivatives are, roughly speaking, agent noun **S**$_1$, patient noun **S**$_2$, active adjectival **A**$_1$ (*in search of* for [*to*] LOOK FOR), passive adjectival **A**$_2$ (*under*

construction for [*to*] BUILD), place noun **S**$_{loc}$, instru *construction* for [*to*] BUILD), place noun **S**$_{loc}$, instrument noun **S**$_{instr}$, active potential adjective **Able**$_1$ (*inquisitive* for [*to*] ASK), passive potential adjective **Able**$_2$ (*reliable* for [*to*] RELY), etc.
Generics: hyperonym **Gener** and metaphoric denotation **Figur** (*curtain of rain*).

Quantifiers: singulative **Sing** (*speck of dust*; *peppercorn* for PEPPER), and collective **Mult** (*pride of lions*, *pack of LIES*).

Modifiers: **Magn**, **Plus/Minus**, **Ver** (*restful sleep*), **Bon** (*valuable contribution*, *exquisite meal*).

Phasals: verbs denoting the three phases of an event — the beginning (**Incep**), the end (**Fin**), and the continuation (**Cont**). These LFs are often used combined with other verbal Lfs:

IncepOper$_1$(*love*) = *fall* [*in* ~] **IncepOper**$_2$(*control*) = *fall under* [*the* ~ *of N*]
FinOper$_1$(*post*) = *lose* [ART/A$_{poss}$ ~] **FinOper**$_2$(*control*) = *go out* [*of* ~]
ContOper$_1$(*post*) = *keep* [ART/A$_{poss}$ ~] **ContOper**$_2$(*control*) = [*remain under* ~]

Causatives: verbs denoting the three possible types of causation, i.e. causation of existence (**Caus**), causation of non-existence (**Liqu**), and non-causation of non-existence (**Perm**). These LFs are also often used combined with other verbal Lfs:

CausFact$_0$(*light* [electricity]) = *turn on*
LiquFunc$_2$(*attention*) = *detract* [N's ~ *from* N]
Perm$_1$**Manif**(*emotion*) = *betray* [an ~]

Note that the phasals stand in antonymous relation to each other; the same holds true of causatives: **Incep** = **AntiFin**, **Liqu** = **AntiCaus**, etc. Furthermore, causatives and phasals are also related, because you can cause the beginning, the end or the continuation of an event.

Auxiliaries (= support, or light, verbs): semantically empty verbs linking a DSynt-actant [= A] of L to L.
Oper$_{1,2}$ takes L as its DSyntA **II** (*have* CONTROL [*over* N]; *be under* CONTROL [*of* N]);
Func$_{0,1,2}$ takes L as its DSyntA **I** (*a* CHANGE *occurs comes from* N/ *affects* N);
Labor$_{12,21}$ takes L as its DSyntA **III** (*keep* [N] *under control*).

Realizations: **Real**$_{1,2}$, **Fact**$_{0,1,2}$, **Labreal**$_{12,21}$, which mean ([to] realize, [to] do what you are supposed to do with), but are syntactically parallel to **Oper**$_{1,2}$, **Func**$_{0,1,2}$ and **Labor**$_{12,21}$.
Real$_{1,2}$ takes L as its DSyntA **II** (*keep a* DIARY; *get a* HINT, *withstand a*

TEST);

Fact$_{0,1,2}$ takes L as its DSyntA **I** (*a* FILM *is playing*, *a* RIVER *empties* [*into* N]; *an* ARTILLERY SHELL *smashes* [*into* N], *a* HURRICANE *lashes* [N]);

Labreal$_{12,21}$ takes L as its DSyntA **III** (*put* [N] *in the mail* , *have* [N] in *one's sights*).

Varia: **Involv**(*sweep* [*through* N] for FLU), **Son** (*a* HURRICANE *roars; a* WHIP *cracks*), **Imper** (*Fire!* for SHOOT), **Degrad** (MEAT *goes off*), **Manif** (*show* for GRATITUDE), **Sympt** (*The hair stands on its end* for FEAR).

Simple Standard LFs can form combinations, to produce Complex Standard LFs, such as:

AntiMagn(*a flimsy* ARGUMENT; *precarious* PEACE);
CausFunc$_0$(*ignite a* CAMPAIGN);
LiquOper$_1$(*wean* [N] *away from the* HABIT);
CausPredPlus(*whet N's* APPETITE), etc.;

see also Complex LFs with phasals above.

Given the fully semantic orientation of the MTM, the lexicon, that is, the ECD, plays a central role in it: the most important part of linguistic meaning is constituted by lexical meanings of the language. The ECD constitutes the central pivot of the MTM to such an extent that the whole approach may be qualified as lexicographic.

A Sample ECD Lexical Entry

X's revulsion for Y = X's (strong) negative emotion about Y similar to what people normally experience when they are in contact with something that makes them sick and such that it causes that X wants to avoid any contact with Y.

Government Pattern

X = I	Y= II
1. N's	1. *for* N 2. *towards* N 3. *about* N 4. *at* N

1) $C_{II\,1}$: N does not denote sounds [**John's revulsion for these shouts*]

Lexical Functions

$\mathrm{Syn}_{\supset}$: distaste

$\mathrm{Syn}_{\cap}$: repugnance; repulsion; disgust; loathing

$\mathrm{Anti}_{\cap}$: attraction

$\mathrm{Conv}_{21}\mathrm{Anti}_{\cap}$: appeal

A_1 : revolted; **rare** revulsed

Able_2 : revolting

Qual_2 : squeamish; overly sensitive

$\mathrm{Magn} + \mathrm{Able}_2$: of utmost ~ | G = SCENE, SIGHT

Magn : extreme < utmost

AntiMagn : slight

Oper_1 : experience, feel [~ for/towards N = Y]

$\mathrm{Magn} + \mathrm{Oper}_1$: be filled [with ~ (about N = Y)]

$\mathrm{Magn} + \mathrm{Func}_1$: well up [in N] [*Revulsion welled up in him*]

$\mathrm{Magn} + \mathrm{Labor}_{21}$: fill [N = X with ~]

$\mathrm{Conv}_{21}\mathrm{Caus}_2\mathrm{Oper}_1$: be driven [to ~]

Caus_2 : revolt [N = X]

$\mathrm{Adv}_1\mathrm{Manif}$: with [~]

Examples

Any revulsion they might feel from fat-ass bastards they ran up against professionally was *ad hominem* and not *ad genus* [A. Lurie]. I felt no revulsion for her maternal fantasies, only a practical concern. She met his advances with revulsion. It was a scene of utmost revulsion. Pam was driven to revulsion (by the sight of the dead animal) <*The sight of the dead animal drove Pam to revulsion>. Revulsion at slaughter cut war short [newspaper heading].

7. The Metalanguage of Linguistics

Since the MTM presupposes a fully formal and coherent description of all linguistic levels, the MTT requires a well-defined conceptual apparatus and precise unambiguous terminology. Therefore, special attention is paid in the MTT to the metalinguistic aspect of linguistic description (see Mel'čuk 1982a and 1993-97).

MAIN REFERENCES

These references are restricted to my own work directly related to the Meaning-Text theory.

Ilson, Robert, and Mel'čuk, Igor. 1989. "English BAKE Revisited (BAKE-ing an ECD)."*International Journal of Lexicography*, 2 : 3, 325-345.

Mel'čuk, Igor. 1981. "Meaning-Text Models: A Recent Trend in Soviet Linguistics." *Annual Review of Anthropology* 10, 27-62.

— 1982a. *Towards a Language of Linguistics. A System of Formal Notions for Theoretical Morphology*, Munich: Fink.

— 1982b. "Lexical Functions in Lexicographic Description." In: *Proceedings of the VIIIth Annual Meeting of the Berkeley Linguistics Society,* 427-444.

— 1986. "Semantic Bases of Linguistic Description (Meaning-Text Linguistic Theory)." *LACUS Forum* 12, 41-87.

— 1988a. *Dependency Syntax: Theory and Practice*. Albany, NY: The SUNY Press.

— 1988b. "Semantic Description of Lexical Units in an Explanatory Combinatorial Dictionary: Basic Principles and Heuristic Criteria." *International Journal of Lexicography*, 1: 3, 165-188.

— 1989. "Semantic Primitives from the Viewpoint of the Meaning-Text Linguistic Theory." *Quaderni di semantica*, 10 : 1, 65-102.

— 1993-97. *Cours de morphologie générale, vol. 1: Introduction + Le mot* (1993); *Cours de morphologie générale, vol. 2: Significations morphologiques* (1994); *Cours de morphologie générale, vol. 3 : Moyens morphologiques. Syntactiques morphologiques* (1996); *Cours de morphologie générale, vol. 4 : Signes morphologiques* (1997). Montréal: Les Presses de l'Université de Montréal – Paris: CNRS Éditions.

— 1995. "Phrasemes in Language and Phraseology in Linguistics." In: M. Everaert, E.-J. van der Linden, A. Schenk and R. Schreuder (eds), *Idioms. Structural and Psychological Perspectives*, 1995, Hillsdale, NJ—Hove: Lawrence Erlbaum

Associates, 167-232.

— 1996. "Lexical Functions: A Tool for the Description of Lexical Relations in the Lexicon." In: L. Wanner (ed.), *Lexical Functions in Lexicography and Natural Language Processing*, Amsterdam/Philadelphia: Benjamins, 37-102.

Mel'čuk, Igor, *et al.* 1984, 1988, 1992. *Dictionnaire explicatif et combinatoire du français contemporain : Recherches lexico-sémantiques* I, II, III. Montréal: Presses de l'Université de Montréal.

Mel'čuk, Igor, Clas, André, and Alain Polguère. 1995. *Introduction à la lexicologie explicative et combinatoire*. Louvain-la-Neuve: Duculot.

Mel'čuk, Igor, and Alain Polguère. 1987. "A Formal Lexicon in the Meaning-Text Theory (or How to Do Lexica with Words)." *Computational Linguistics*, 13 : 3/4, 261-275.

Mel'čuk, Igor, and Alexander Zholkovsky. 1984. *Explanatory Combinatorial Dictionary of Modern Russian*. Vienna: Wiener Slawistischer Almanach.

— 1988. "The Explanatory Combinatorial Dictionary." In: M. Evens (ed.), *Relational Models of the Lexicon*, Cambridge *etc.*: Cambridge University Press, 41-74.

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THE ORGANIZATION AND PRODUCTION OF NARRATIVE

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1. Introduction

The present study aims to examine discourse structure and coherence from a cognitive perspective in terms of mental processes and mental representations. We conducted an experiment where speakers of two different languages – English and Chinese produced narrative in both spoken and written forms. The results reveal strikingly similar characteristics as well as differences in structure organization and information patterning between the discourse modes and the languages, which can be better understood on the basis of cognitive processes and representations.

The basic assumption underlying structural analysis of discourse is that although stories and texts are produced in a linear way, they are nonetheless processed hierarchically. Speakers or writers try to produce a discourse as separate but interrelated structural units, and hearers or readers also try to comprehend incoming information in a similar fashion. This hierarchical organization of discourse is a manifestation of the limited capacity of human cognitive resources since the working memory buffer for text is severely limited, retaining no more than 2-5 clauses at a time or about 8-20 seconds of verbatim text (Just and Carpenter, 1992). Writers, though not so severely constrained, have to empathize with the reader's cognitive capacity limitations if they want to get their intended message across efficiently and effectively. Indeed, speakers and writers have been found to consistently break the overall discourse into smaller units, which are connected to one another at the same level to maintain local thematic continuity, and subsumed under the general discourse theme to manage global coherence of the discourse. They try to produce coherent discourse to help readers build a mental representation of discourse congruent with their own because "coherent communication enables the reader or listener to build a mental representation of what the writer or speaker intended to convey" (Traxler and Gernsbacher 1995: 215).

The present study states that discourse coherence is achieved through both hierarchical organization of discourse and specific mechanisms and codings used by speakers and writers to help the mapping processes of the audience.

2. The Narrative Experiment

The experiment was designed to test (a) if speakers or writers organize discourse hierarchically into separate and interrelated units of episode, and how they mark such a unit in discourse production, (b) how they seek and achieve local and global coherence within and between episodes, and (c) how they encode and package events with various syntactic structures, and what functions those structures serve in oral and written narratives. The experiment was also designed to compare the spoken and written narratives and explore their similarities and differences in discourse structure and coherence on the one hand, and to examine how speakers of the two different languages composed stories from the same set of pictures, and what strategies and structures they employ to accomplish the same discourse goal on the other.

The stimulus material came from a children's picture storybook, without a written text, about a little boy – Alex Pumpernickel (Krahn 1981), which consists of eight excerpts, each of which is headed by a subtitle and a picture clock indicating the time period of the excerpt. Three excerpts, eight pictures each, were selected for our experiment, and the subtitles and picture clocks were removed in the stimulus material so that the subjects would have to read or view the storybook as a picture sequence and construct the story without any linguistic clues. The purpose of the experiment was to see whether the subjects would perceive, organize, produce and retrieve the non-verbal information as episodes, as would be predicted by the episode theory (Schank and Ableson 1977, van Dijk and Kintsch 1978).

There are two experimental tasks for each subject: an oral on-line description of the picture sequence and a written recall afterwards. The instruction was presented to the subjects in written form, which did not mention or suggest that the pictures "tell" a story or stories. In the oral task, the subjects were asked to describe each picture while paging through the picture sequence. We wanted to see how the speaker would construct the narrative without a specific discourse plan (i.e., without knowing what is happening next), as contrasted to the written narrative where the writer recalled a planned or structured discourse from memory. The cognitive activities of the two language processors are quite different, which may manifest themselves in discourse production. Forty subjects participated voluntarily in the experiment. Twenty were native English speakers from Northern State University, and twenty were native Mandarin Chinese speakers from the Central China University of Finance and Economics. All subjects were undergraduates and about half were women.

3. Results and Discussion

In general, the speakers and writers of both languages produced very similar narratives in terms of structure organization and discourse coherence. However, the written narratives are shorter (40 propositions on average) than the oral ones (70 on average). This was expected because the speakers were not only more constrained in cognitive activities of memory and attention, but also required to describe each picture without a specific discourse plan, while the writers, who enjoyed privileges of reproduction with a preconceived discourse plan and less cognitive demands, could easily avoid repetition and redundancy and/or even omit a certain picture or part of the picture if they regarded it as less crucial or non-important to the main story line.

The remaining sections of the chapter will discuss the general character- istics of building narrative structure and specific features of achieving coherence with oral and written samples in both languages.

3.1. Narrative Structure. Our experimental results have given support to the psychological relevance of episode structure in discourse production and comprehension. The subjects of both languages organized the picture sequence into three semantic units, and frequently separated the units linguistically in consistent ways. In the on-line description task, the speakers were very sensitive to the non-linguistic cues of episode shifts such as change of location, change of scenery, change of activities, and change of characters, and use them in building episode structure. Most speakers recognized the boundary between the excerpts in the picture sequence and marked the beginning of a new episode in their oral narratives accordingly. A new episode normally starts with an adverbial phrase of time or location, as exemplified by the following.

(1) Outside in the backyard, the boy is playing tennis with a girl. ... (EO3)

(2) This must be another story because the boy is now in a living room. ... (CO2)

In most cases, the adverbial phrase is accompanied by a reinstatement of the major character, the function of which, however, is twofold. First, building a new mental structure for a new episode consumes more cognitive effort, when and where information of the previous episode becomes less accessible (Gernsbacher, 1990). The speakers, at this point, would use a full noun phrase (NP) or a proper name to quickly reactivate the reference. Second, the use of a full NP at the beginning of a new episode serves as a signal to the listener, who would then start to build a new mental structure for the incoming episode as well. The signal function of NPs have been explored and documented by many studies, as reported in Vonk, Hustinx and Simons (1992) recently that if a character is referred to by a proper name after a run of pronominal references, then the name itself serves to indicate that a shift in topic is occurring.

In the written narratives the episode boundary was made even more explicit. In addition to adverbial phrases, 16 out of 20 English speakers and all 20 Chinese speakers used blank lines, numerical devices, paragraph structure with or without indentation to separate episodes. The general characteristics of the language user's perception and formation of discourse units demonstrate the nature of discourse organization and the importance of episode structure in language production and comprehension. The story information was not only hierarchically organized and produced as a series of episodes, but also so stored and retrieved.

3.2. Discourse Coherence. The present study argues that speakers and writers seek coherence during discourse production both externally in text or non-verbal materials and internally in mind. In our experiment when speakers first began their on-line task many presumed that the picture sequence would tell a story of some sort. Quite a few oral samples start with sentences such as the following:

(3) Once upon a time, there was a little boy (EO4)
(4) Now I'm going to tell you a story ... (CO3)

During the on-line description, the speakers tried to look for cues that would connect pictures both sequentially or hierarchically and used them in encoding story information. Although they had to describe pictures in the order that was presented, they always tried to derive the main theme (macroproposition) of a set of pictures as soon as possible and relate subordinate actions and information to the theme (Guindon and Kintsch 1982). If, at some point, the connection of a picture to the main theme was not clearly presented, the speaker would resort to logic or knowledge base to make the connection or inference. Generally, the coherence is achieved by establishing the following structural frames (cf. Givón 1995): temporal, spatial, thematic, and referential.

3.2.1 Temporal and Spatial Frames. Temporal and spatial framework seemed to be set up early at the beginning of the oral task and at the point of episode shift when other thematic, semantic and discourse information was not yet available. The speakers, at that moment, attempted to establish a coherent basis for the incoming narrative by placing the unknown within a familiar and controllable frame -- the setting of the story. Our narrative samples show that at the beginning of each of the three episodes, the speakers used various phrases of time to build a temporal frame such as "one fine afternoon," "late that day," "it's late now," "once upon a time," etc. Note that the temporal frame only existed in the speaker's mind since nothing in the black and white pictures themselves indicates time after the picture clock was removed from the original picture storybook. The spatial frame, on the other hand, was established by speakers' taking cues in the pictures. As mentioned previously, the subjects were very sensitive to the boundary information and employed it in encoding narrative. In the picture sequence the most readily available episode-shift information was the change of location such as from a living room to a street, from the street to a backyard, etc. The subjects immediately recognized the shift, and marked it linguistically in their narratives to lay the foundation, so to speak, for the new episode. Some of the examples are:

(5) Outside on the street, the boy ... (EO7)
(6) Now the boy is in the living room. ... (CO15)

Although explicit cohesion markers as mentioned above occurred frequently in our narratives, they are not necessary nor sufficient to make a discourse coherent. Some subjects maintained temporal and spatial coherence implicitly by following the order of events; and moreover, most subjects concentrated on thematic coherence once the temporal and spatial framework was set.

3.2.2 Thematic Frame. During the on-line description task, the speakers sought and achieved thematic coherence of the story or an episode by relating subordinating actions and events (micropropositions) to the higher level goal or dominant macroproposition. Most subjects did not merely describe what happened in the picture sequence, but were more concerned about the cause and outcome of the actions, and the purpose and explanation of the characters who performed the actions. Though required to describe each picture in the storybook which contains a great deal of information, the subjects stayed on the main event line, focused on the actions of the central character, and paid less attention to the background or less important information. They elaborated on the pictures that were regarded as important in carrying out the story line, explained the events and actions that added to the understanding of the story, but only touched upon (some even omitted) the pictures that were not critically related to the theme of the story.

Furthermore, when an unexpected outcome or the climax occurred late in an episode, the subjects would incorporate it into the already established thematic framework and explained it especially if it creates some kind of discrepancy from the theme. In the "boy and lobster" episode, for example, the real purpose of the main character doesn't unveil until the seventh picture when the boy opens the bag and gets bitten by a lobster unexpectedly. Every subject described the event and many commented:

(7) The boy didn't really want to help the lady, he was just too curious.(EO9)
(8) He was curious about what's in the bag, that was why he offered help. (CO13)

Similarly, when the speaker was puzzled by an action or motive of the main character at some point, he/she would try to resort to logical reasoning or knowledge base to make inferences so as to keep on with the story development. In the "boy and fly" episode, for instance, many speakers weren't certain in pictures 6 and 7 why the boy was messing with the newspapers, but they managed to come up with explanations, most of which were closely tied to the theme of the story that was established in the first and second pictures of the episode, i.e., the boy's attempt to swat a fly. The following exemplifies such an effort.

(9) He's going through the papers. I guess he's looking for the fly. (EO8)
(10)Then, he throws them up, trying to get the fly to fly out. (CO6)

The data are consistent with Trabasso, Suh and Payton's (1995) argument that "it is the extensive knowledge about goal/plans that we have that allows us to infer them and use them to explain actions and events over large distances in the network, and that the inferences are made regardless of 'local' coherence being possible" (p. 212).

Writers, on the other hand, used the same strategies in achieving temporal, spatial and thematic coherence, but were more organized and concise in their recall since they had already had the settings, plans, actions and goals of the episodes in mind and were freer in their choice of picture/event description.

3.2.3 Referential Frame. Closely related to thematic coherence is the referential continuity which speakers and writers seemed to establish and maintain throughout discourse production with the use of distinct syntactic forms. The speakers recognized and identified, very early in their description, the protagonist of the story, whose actions and goals were the focus of the narrative. It has long been noted that there is a correlation between the cognitive status of a referent and the linguistic form encoding the referent. Researchers have demonstrated that forms which signal the most restrictive cognitive status (in high focus) are always those with the least phonetic content, namely unstressed pronouns, clitics, and zero pronominals (Givón 1989, Gundel, Hedberg and Zacharski 1993, Pu 1995). A discourse participant that is in focus is very likely to persist as a topic over a span of discourse. Indeed, our narrative data show that the main character of the story, the little boy, was very frequently referred to by lexical pronouns and zero anaphora (about 70% on average of all referring expressions) and the supporting character full NPs (about 74% on average). For example,

(11) A little boy is walking on the street. **He** meets an old lady carrying some bags. **He** asks the lady what's in the bags, and the lady gives **him** one of the bags. The lady walks off and **he**'s holding the bag. ... (EO11)

(12) **She** was standing on a chair to swat the fly. The fly flew toward a pile of newspapers on the couch. **She** swatted on the papers and woke a man because the man was lying under the newspapers sleeping. The man was very angry. ... (CW2)

The experimental results have offered a challenge to the referential distance model (Givón 1983) and the given-new principle (Clark and Haviland 1977), both of which predict that the secondary character in the story would be coded with more pronominal forms because it is given information after being introduced in the discourse, and is mentioned repeatedly in consecutive clauses. The present study argues that these traditional functional notions can be recast in terms of the independently motivated cognitive constraints: some entities that contain given information or fall within shorter referential distance often get pronominalized not just because they are *given* or being rementioned immediately, but more precisely because they are at the moment "lit up" or receive speakers' focal attention (Chafe 1992). On the other hand, other entities that also seem to contain given information or get rementioned again in the following clauses are not pronominalized because they are not currently resident in speakers' focal attention.

3.3. Oral and written narratives. The present study has witnessed remarkable similarities between the oral and written narratives in terms of structural organization and coherence building, but differences have also been observed in other aspects of discourse production because of the different cognitive activities involved. Our experimental result reveal that a large percentage of the relative clauses in the written narrative are of the information-bearing type, which provide new information (Beaman, 1984). The following examples illustrate the different information-bearing relative clauses between the two modes of narratives.

(13) He fell on the couch where the newspapers are piled. (EO16)
(14) He opens the bag that he's carrying. (CO11)
(15) He meets an old lady who is carrying some groceries. (EW3)
(16) He didn't see a man who is lying under the newspapers. (CW9)

Speakers, constrained by limited cognitive resources, tend to produce at most one chunk of new information (=disjointed) per clause (Givón 1995), while writing allows a relaxation of the constraints that govern the distribution of new information in spoken language. In his study of written units, Chafe (1992) argues that the one-new-idea-at-a-time constraint limits spoken units to no more than one new idea, but that constraint does not apply in the written units, which normally contain more than one new idea.

Another major difference found between the two modalities is that the written narrative renders more topic chains containing zero anaphora than does the oral one, where sequences of actions and events were frequently described by separate sentences, as exemplified by the following passages.

(17) He jumps through the window, sticks a spoon in the stew and dishes out the ball. (EW5)
(18) He then throws the paper at his dad, spotted the fly, and runs after it again. (CW4)
(19) He looks inside the bag of groceries, and he is bit by a lobster, and he's sweating. (EO6)
(20) He can't reach the fly, so he jumps off the chair, and he swats the papers instead. (CO7)

Consequently the written narrative sees an increase of about ten percent more zero anaphora from its oral counterpart. The difference may not result so much from different modalities as from different cognitive demands of the experimental tasks. The on-line task consumed more cognitive resources than the written task because a) the speakers must quickly comprehend each picture pair before describing it, b) they must simultaneously grasp all semantic, pragmatic, and discourse information that would facilitate comprehension and production, c) they must make immediate connections both sequentially and hierarchically in order to tell a coherent story, and d) they didn't quite know what to expect in the next pair of pictures as they turned each page. Therefore at the point of a page-turning, their attention span was naturally diverted, and at such a point, zero pronoun, the least explicit anaphora, that assumes the most thematic or discourse continuity, would NOT be preferred since an attention gap in the mind results in a thematic discontinuity in text. On the other hand, the written recall task required fewer cognitive demands, and the imposed attention shift such as page-turning did not happen. The subjects were therefore more focused in their narrative production, and as a result, zero pronouns were more frequently used to refer to the main character within a discourse span.

3.4. English versus Chinese. Although the narratives of both languages are strikingly similar in many aspects of discourse production, differences are nonetheless expected between the two languages. The present study finds that the differences lie mostly at the sentence level in coding specific events. Chinese speakers, for example, appeared to be more inclined to specify the reason or cause of an action than their English counterparts. This can be shown in the narrative samples of the "boy and fly" episode, when the fly is about to land on a pile of newspapers on the couch, the boy swats the papers and unexpectedly wakes an adult underneath. Most English speakers focused on the action and the outcome.

(21) The boy swats the newspapers on the couch, but his father is sleeping underneath the newspapers. His father sits up and the newspapers fly all over. (EO14)

More than half of the Chinese speakers, however, were more interested in the cause and effect of the event. A typical passage reads:

(22) The boy swats the newspapers, but the newspapers are what his father used to cover his face while sleeping. He thus hits his father on the face and interrupts the father's sweet dreams. (CO9)

Similarly in the "boy and tennis ball" episode, when describing the event that the boy hits the ball into a window, more than half (11 in oral and 14 in written) of the Chinese speakers explicitly mentioned the agent and the cause of the action, while most English speakers (16 in both) were more inclined to just describe the event and code "the ball" as subject. For example,

(23) All of a sudden, the boy hits the ball into a window. (CW3)
(24) They play the ball back and forth until it goes flying into the neighbor's window. (EW9)

The difference was also evidenced in the coding of the "boy and lobster" episode, when the boy was attacked by a lobster in the bag. While the English speakers (10 in oral and 11 in written) seemed to keep their attention on the major character, most Chinese speakers (15 in oral and 17 in written) switched subjects and were shown again more interested in the cause and the agent of an action. The following sentences illustrate the difference.

(25) He opens the bag and gets attacked by a lobster. (EO15)
(26) He opens the bag and finds a lobster that pinches his hand. (EW16)
(27) He opens the bag, and out jumps a lobster and bites him. (CO4)
(28) He opens the bag. A lobster comes out and bites his hand. (CW11)

A final point of interest is the different pronominalization process between the two languages. It has been noted that unlike English which uses anaphoric pronouns as a norm and zero anaphora in syntactically more constrained circumstances, Chinese makes a much lesser use of lexical pronouns and an extensive use of zero anaphora in discourse (Li and Thompson, 1979). Indeed, our data show that in the written narratives, the Chinese subjects made a principal use of zero anaphora (65% of all pronominals), and the English subjects very frequently employed lexical pronouns (60% of all pronominals) to maintain references after the main character had been identified in an episode. For example, when describing the first few events of the "boy and fly" episode, a typical Chinese passage is rendered as follows:

(29) The fly falls on a pile of newspapers on the sofa. The boy jumps off the chair, raises his flyswatter, aims at the fly on the newspapers, swats (it) hard, but the fly (he) doesn't hit, his father who is sleeping on the sofa (he) does awake. (CW18)

In contrast, a typical English narrative description reads:

(30) The fly was about to land on the newspapers, Fred jumped off his chair and took a swing at the fly, he missed. He lost his balance and fell on the newspapers. He didn't realize that his father was sleeping under the newspapers. (EW7)

Both passages described a chain of actions with the boy as the agent, but the Chinese writer used zero anaphors to refer to the character while the English writer used more lexical pronouns although syntactically there is nothing to prevent the ellipsis from occurring in the underlined subject position in the English passage.

The present study argues that the different pronominalization lies, not just in the syntactic constraints of the two languages as explicated by previous studies, but also in the nature of distinct discourse properties between the two languages. Chinese discourse is topic-oriented. Once a topic is established in discourse, it sets a spatial, temporal, or individual framework (Li and Thompson, 1981) and usually persists over a span of discourse, within which each sentence is understood as being about the topic. In the above Chinese passage, the topic (the central character) is identified in the first sentence of the individual framework by a full NP, and then left unspecified until the topic frame ceased to exist. English discourse, on the other hand, is subject-oriented, where the relationship between the subject and the predication of the sentence figures more prominently than its Chinese counterpart. Hence, although the English passage (30) above describes the same sequence of events experienced by the same character as does the Chinese passage (29), the subject of the sentence within this span of discourse is more often than not made explicit once a slight change in predication occurs. As can be seen from passage (30), "jumped off his chair and took a swing at the fly" records an action sequence, "missed" indicates the result, "lost his balance and fell on the newspapers" characterizes cause-effect, and "didn't realize ..." describes a mental process.

4. Conclusion

The present study has demonstrated, with the experimental results, that narratives produced in different forms and languages are strikingly similar. The speakers and writers in general organized the narrative into separate yet interrelated episodes, sought and achieved local and global coherence through establishing temporal, spatial, thematic and referential frames, focused on the development of the main story line, and coded foreground and background information in systematic ways. This general narrative production reflects cognitive activities and mental processes and also results from the speaker's attempt to establish and convey coherent discourse representation. In other words, they try to deliver a coherent discourse so as to help their readers establish a proximal discourse representation from their own.

REFERENCES

Beaman, K. 1982. "Coordination and Subordination Revisited." In D. Tannen (Ed.), *Analyzing Discourse: Text and Talk,* 45-80. Washington, D.C.: Georgetown University Press.

Chafe, W. 1992. "The Flow of Ideas in a Sample of Written Language." In Mann, W.C. and S. A. Thompson (eds.), *Discourse Description: Diverse Linguistic*

Analysis of a Fund-raising Text, 268-94. Amsterdam: Benjamins.

Clark, H.H. & S.E. Haviland. 1977. "Comprehension and the Given-new Contract." In R.O. Freedle (ed.), *Discourse Production and Comprehension*, 1-40. N.J.: Ablex.

Gernsbacher, M.A. 1990. *Language Comprehension as Structure Building*. Hillsdale, New Jersey: Erlbaum.

Givón, T. 1989. *Mind, Code and Context: Essays in Pragmatics*. Hillsdale, New Jersey: Erlbaum.

— 1983. "Topic Continuity and Word Order Pragmatics in Ute." In T. Givón (ed.), *Topic Continuity in Discourse*, 343-63. Amsterdam: Benjamins.

— 1995. "Coherence in Text Vs. Coherence in Mind." In M.A. Gernsbacher, and T. Givón (Eds.). *Coherence in Spontaneous Text. Typological Studies in Language*, Volume 31, 59-115. Amsterdam: Benjamins.

Guindon, R. & W. Kintsch. 1982. *Priming Macrostructures.* Technical Report. University of Colorado. Colorado.

Gundel, J., N. Hedberg and R. Zacharski. 1993. "Cognitive Status and the Form of Referring Expressions in Discourse." *Language* 69: 274-307.

Just, M.A. and P.A. Carpenter. 1992. "A Capacity Theory of Comprehension: Individual Differences in Working Memory." *Psychological Review* 99(1).

Krahn, F. 1981. *Here Comes Alex Pumpernickel*! Boston: Little, Brown & Co.

Li, C.N. & S. A. Thompson. 1979. "Third Person Pronouns and Zero-pronouns in Chinese Discourse." In T. Givón (ed.), *Discourse and Syntax*, 311-335. New York: Academic Press.

Li, C.N, and S. A. Thompson.1981. *Mandarin Chinese: a Functional Reference Grammar*. Berkeley and Los Angeles: University of California Press.

Pu, M-M. 1995. "Anaphoric Patterning in English and Mandarin Narrative Production." *Discourse Processes* , 19(2): 279-300.

Schank, R.C. & R.P. Abelson. 1977. *Scripts, Plans, Goals and Understanding.* Hillsdale, New Jersey: Erlbaum.

Trabasso, T., S. Suh and P. Payton. 1995. "Explanatory Coherence in Understanding and Talking about Events." In A. M. Gernsbacher, and T. Givón (eds.). *Coherence in Spontaneous Text. Typological Studies in Language*, Volume 31, 189-214. Amsterdam: Benjamins.

Traxler, M. J. and M. A. Gernsbacher. 1995. "Improving Coherence in Written Communication." In M.A. Gernsbacher, and T. Givón (Eds.), *Coherence in Spontaneous Text. Typological Studies in Language*, Volume 31, 215-37. Amsterdam: Benjamins.

van Dijk, T & W. Kintsch. 1978. "Cognitive Psychology and Discourse: Retelling and Summarizing Stories." In W.U. Dressler (ed.), *Current Trends in Text Linguistics*, 61-81. Berlin: de Gruyter.

Vonk. W., L.G.M.M. Hustinx and W.H.G. Simons. 1992. "The Use of Referring Expressions in Structuring Discourse." *Language and Cognitive Processes*, 7(3/4): 301-33.

II

PHONETICS AND PHONOLOGY

THE INVISIBLE CONSONANTS IN *CYNGHANEDD* POETRY

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1. Consonantality

In the dynamics of speech production, consonants obstruct and constrain the articulation of syllabic vowels. As such, they involve precise articulations which have perceptible acoustic effects — which is simply to say that they are indeed produced and are perceived. Thus, one would expect that a consonant so produced and perceived would be recognized in the phonology.

There is, however, a question of degree. Is there a systematic degree of consonantality in which the phonetic consonant is in effect invisible to the phonology? Is there a threshhold below which a consonant, albeit articulated to the point of obstructing the vowel and perceived as an abrupt transition from or to a locus, is not accepted as consonantal?

2. The Invisible Consonants of Cynghanedd *Poetry*

Such invisible consonants, unlikely as they may seem, arise in the traditional Welsh *cynghanedd* ('correspondence') poetry, especially the poetry of the Golden Age of *cywydd* as presented in Eurys Roberts' *Poems of the Cywyddwyr: A Selection of Cywyddau c. 1375-1525.*

This poetry is precise in its phonetic requirements of alliteration. Given the rules of the genre, consonants correspond in patterns of alliteration from one part of the line to another, as in the following line:

bradwyr a droes brwydr a drwg
br d r dr´s | br dr dr´g
(Rowlands 1976: xxix)

(For further information on the rules of *cynghanedd*, see Loth 1900, Morris Jones 1925, Parry-Williams 1936, Evans 1951, Roberts 1973, and Rowlands 1976.)

These correspondences are based solely upon the phonetics, and Welsh allows no equivalent to the English "sight rhyme," such as *love/move*. Indeed, as demonstrated in Griffen 1981 (also 1985: chapter 13), there are dynamic processes such as coalescence in which apparent orthographic exceptions turn out to be phonetically precise and regular, as indeed they must be.

In spite of the phonetic regularity of *cynghanedd* correspondences, there is a group of "exceptions" (a technical term) in which a consonant in one half-line may go "unanswered" in the other. Indeed, some of these unanswered consonants have been "prescribed" — accepted as exceptions by the bardic grammarians. These are represented in table 1 (from the data in Roberts 1976: xxxiv-xxxvi):

Table 1: Exceptions

Sound	Environment	Comments
n [n]	beginning of line beginning of half line middle of series	prescribed, extensive prescribed, extensive occasional
m [m]	beginning of line	occasional
r [r]	beginning of line middle of series	extensive occasional
h [h]	throughout	prescribed, not normally answered in correspondences, but occasionally counted when emphasized
f [v]		only two examples in corpus, but it was not normally answered in earlier *cynghanedd* poetry

From the viewpoint of traditional phonetics and phonology, this group does not appear to have any phonetic justification. The sounds involved include two of the three nasals, one of the two liquids, the voiceless glottal fricative (the aspirate), and the voiced labial fricative. In terms of phonetic features inherent to phonetic/phonemic segments, there is no single feature that can classify the group as a natural class. In fact, the only feature they bear in common is [+consonantal], although ironically this is the very group that is not treated as [+consonantal] in the poetry.

3. The Dynamics of Welsh Consonants

From the viewpoint of dynamic phonetics and phonology, on the other hand, the group does appear to constitute a natural class — not of segments or letters, but of relative dynamic aspirate intensity.

As demonstrated repeatedly in this researcher's publications (compare Griffen 1985: chapters 5 and 7), this aspirate intensity forms the very basis of the degree of consonantality in the traditional fortis-lenis scale. Acoustically, it has been isolated as a high-to-low frequency energy ratio — the greater the ratio of high-frequency emissions over low, the greater the constraint on the vowel and the more "consonantal" the obstruction. For example, a dental obstruction constrained by the lowest degree of aspiration (within the ratio) is heard as voiced frication; constrained by the next lowest degree of aspiration, it is heard as voiced occlusion; constrained by the next highest degree of aspiration it is heard as voiceless aspirate occlusion; and constrained by the highest degree of aspiration it is heard as voiceless frication. In traditional segmental notation, this yields [ð], [d], [tʰ], [θ], as illustrated in the progression from lenis to fortis in the spectrogram in figure 1.

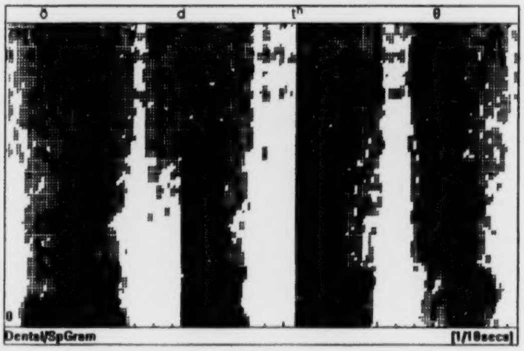

Figure 1: Spectrogram of the Nonsense Syllables [ðə də tʰə θə]

This feature of aspiration is the organizational factor for the Welsh fortis-lenis scale which lies at the heart of the mutation system. In an environment of soft mutation (such as the direct object of an inflected verb), the loss of one degree of aspiration from ***dŵr*** [du:r] 'water' yields the soft mutation form ***ddŵr*** [ðu:r], as the loss of one degree of aspiration from ***tŵr*** [tʰu:r] 'tower' in precisely the same environment yields the soft mutation form ***dŵr*** [du:r].

For Welsh, the fortis-lenis scale can be represented as in table 2 (on the following page).

4. Dynamic Analysis of the "Exceptions"

A comparison of tables 1 and 2 reveals a rather striking pattern. In each case, the exceptional consonantal obstruction is relatively weak in the context of the possibilities open to the aspirate constraint in the corresponding order. Here the concept of relativity is crucial, for in phonology it is not the absolute value of a

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feature that determines its function, but rather the relative value within the system (see, for example, Jakobson and Waugh 1979: 13-19).

4.a The Nasal. One of the most common exceptions in the poetry is that of the dental nasal *n* [n], with the labial nasal *m* [m] following suit. These are the only nasals that would appear in initial position of the phonological word (the velar nasal *ng* [ŋ] occurs only in nasal mutation with a proclitic).

Table 2: Welsh Fortis-Lenis Scale				
	Degree of Aspiration (series)			
Position of Obstruction (orders)	1 aspirate	2 aspirate	3 aspirate	4 aspirate
	Obstruents			
labial	*f* [v]	*b* [b]	*p* [pʰ]	*ff/ph* [f]
dental	*dd* [ð]	*d* [d]	*t* [tʰ]	*th* [θ]
velar	-	*g* [g]	*c* [kʰ]	*ch* [χ]
	Liquids			
lateral	*l* [l]			*ll* [ɬ]/[l̥h]
trill	*r* [r]			*rh* [r̥h]
	Nasals			
labial		*m* [m]		*mh* [m̥h]
dental		*n* [n]		*nh* [n̥h]
velar		*ng* [ŋ]		*nhg* [ŋ̊h]
	Aspirate			
laryngeal	←—— *h* [h] ——→			

In the case of the exceptional nasals, the only other homorganic possibilities would be the aspirated nasals realized in nasal mutation — *nh* [n̥h] and *mh* [m̥h]. While the unaspirated nasals pattern in the system on the second level of aspirate constraint (as the soft mutation of *m* [m] is *f* [v]), their aspirated nasal counterparts pattern in intensity of aspiration with the spirants, making them voiceless aspirated nasal fricatives (see Jones 1966).

Relatively, then, the difference between the unaspirated nasals at the second degree of aspirate constraint and the aspirated nasals at the fourth degree of aspirate constraint is greater than the difference between immediately "adjacent" homorganic members of the fortis-lenis scale. In their respective orders, the unaspirated nasals are thus extremely weak constraints within the perspective of phonological relativity.

4.b The Trill Liquid. As continuous obstructions with very little effect on the vowels they constrain, liquids are inherently weak obstructions, often classified as both [+consonantal] and [+vocalic]. As such, both the *r* [r] and the *l* [l] are not only within the range of the first level of aspirate constraint, but they are rather clearly at the "bottom" — the most vowel-like, least obstructional of this series.

In contrast, the other homorganic members of the liquid orders are, as are the aspirated nasals, at the fourth level of aspirate constraint — voiceless aspirated trill and lateral fricatives. Once again, the relative difference between the unaspirated liquids and the aspirated liquids spans several degrees of aspirate constraint.

The only outstanding question is: Why is the trill liquid excepted, while the lateral liquid is not? The answer to this probably lies in the degree to which the *r* [r] may be seen as differing in aspirate intensity from the *l* [l]. As noted for example by Harms, "Retroflex consonants are treated as flat (as opposed to 'plain' consonants). In many languages /r/ also produces flatting (noticeable in the effect upon surrounding vowels or its relationship to the semivowel /w/, so that it would seem plausible to contrast r : l in terms of flatness (or perhaps graveness)" (1968: 32).

The importance of this relative difference in gravity is treated in more detail in section 4.d, below.

4.c The Aspirate h *[h].* The fact that the aspirate *h* [h] is not normally answered in *cynghanedd* correspondences unless it is emphasized fits into the pattern with greatest regularity. Without emphasis, the breathiness produced in the glottis is frequently insufficient to constrain the vibrations of the vocal cords. What is produced, then, is not a consonantal obstruction at all, but simply a breathy vocalic articulation. As such, it does not even qualify as a first-level aspirate constraint.

On the other hand, the emphasized aspiration of a clearly articulated *h* [h] consists of phonetic "white noise" — the high frequency emission that is most characteristic of the fourth degree of prosodic aspirate constraint. While the unemphasized *h* [h] is not even consonantal then, the emphasized *h* [h] as full glottal frication patterns with the most obstructive constraints. The relative degree of difference between the two is thus greater than the degree between any other aspirate levels in the system.

4.d The Labial f */v/.* This leaves the labial *f* [v], which does not appear to be particularly exceptional. In table 2 it apparently differs from *b* [b] (and secondarily from *m* [m]) by no more than one degree. Just as the trill is actually somewhat less obstructive than the lateral liquid, however, the labial is likewise weaker than the dental, and this relative weakness is directly related in the fortis-lenis scale with the feature of gravity.

The most fundamental acoustic difference between the consonants and vowels is that the vowels are marked by low-frequency emissions, while the consonants are marked by high-frequency emissions that obscure the low frequency emissions. As one goes "up" the fortis-lenis scale, the emissions gradually reflect the dominance of the high frequencies over the low, as shown once again in figure 1.

As noted in section 4.b, the feature of gravity is marked by "flatting" — low-frequency emission at the vocalic range. Since the obstructions coarticulated with the first-level aspirate constraint are characterized by the lowest frequency emissions that may still identify them as obstruents then, it is a relatively small step from the coarticulation of this degree and the feature of gravity to the vowel. Thus, the velar [ɣ] disappeared entirely in the history of Welsh, for the obstruction at the velar position was so weak and grave relative to other obstructions that it simply became vocalized and ceased being recognized and then even pronounced as an obstruction.

As Morris Jones (1913: 177-81) points out, the *f* [v] and *dd* [ð] have likewise weakened to the point that they can be confused and lost. However, the rate of disappearance of the labial *f* [v] is considerably greater than that of the dental *dd* [ð]. The reason why the *f* [v] is more in danger than the *dd* [ð] is that it shares with [ɣ] the feature of gravity. Being marked by a greater degree of low-frequency emission, the labial obstruction is less obstructive, more vowel-like, and further "down" the fortis-lenis scale relative to the dental.

According to the phonetic aspects of labial *versus* dental obstruction, bolstered by the historical patterns of change reflecting these phonetic aspects, if the *dd* [ð] is considered the typical first-level aspirate constraint, then the *f* [v] must be considered as less than the first-level of aspirate constraint. As it is the relative difference that determines the perceived weakness of the obstruction, the *f* [v] can now be seen to pattern quite consistently with the other exceptions.

5. Conclusion: The Threshold of Consonantality

The dynamic analysis of the evidence reveals a rather simple and straightforward explanation for the invisibility of these consonants: The exceptional consonants all consist of obstructions that are relatively so weak that they fall below a threshold of consonantality. In *cynghanedd* poetry they are not seen as obstructive enough to be considered consonants and are therefore unanswered in the alliteration patterns.

The explanation for the invisibility of these consonants thus lies within the workings of dynamic coarticulatory constraint: All of the exceptions are the relatively weakest articulations of sustained voiced obstructions. The fact that they are voiced is not a factor inherent to the obstructions themselves, but rather a consequence of their failure to suppress the natural voicing of the constrained vowel. The fact that they are sustained while not suppressing voicing allows the vocalic formants to be realized for the duration of the obstruction. Thus, these weakly articulated obstructions can be described as dynamically the most vowel-like, least consonantal obstructions, and their potential exclusion from the consonantal alliteration patterns indeed defines the threshold of consonantality for at least this register of Welsh.

REFERENCES

Evans, J.J. 1951. *Llawlyfr y Cynganeddion*. Cardiff: University of Wales Press.

Griffen, Toby D. 1981. "Prosodic Alliteration in Cynghanedd Poetry," *Bulletin of the Board of Celtic Studies* 29, 497-503.

— 1985. *Aspects of Dynamic Phonology*. Amsterdam: Benjamins.

Harms, Robert T. 1968. *Introduction to Phonological Theory*. Englewood Cliffs: New Jersey: Prentice Hall.

Jakobson, Roman, and Linda Waugh. 1973. *The Sound Shape of Language*. Bloomington: Indiana University Press.

Jones, Robert Owen. 1969. "The Status of the Glottal Fricative in the Dyffryn Nantlle Dialect." *Studia Celtica* 4, 99-109

Loth, J. 1900. *La métrique galloise: Depuis les plus anciens textes jusqu'a nos jours*. Paris: Ancienne Librairie Thorin et Fils.

Morris Jones, John. 1913. *A Welsh Grammar: Historical and Comparative, Phonology and Accidence*. Oxford: Clarendon.

Morris Jones, John. 1925. *Cerdd Dafod*. Oxford: Clarendon.

Morris Jones, John, and T.H. Parry-Williams (eds.). 1971. *Llawysgrif Hendregadredd*, 2nd ed. Cardiff: University of Wales Press

Parry-Williams, T.H. 1936. *Elfennau Barddoniaeth*. Cardiff: University of Wales Press.

Roberts, Alan Lloyd. 1973. *Anghenion y Gynghanedd*. Cardiff: University of Wales Press.

Rowlands, Eurys I. 1976. *Poems of the Cywyddwyr: A Selection of Cywyddau c. 1375-1525*. Dublin: Dublin Institute for Advanced Studies.

A PHONETIC BASIS FOR CROSS-LANGUAGE PATTERNS IN VOWEL ROUNDING

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1. Introduction

In this paper, some universals and generalizations are presented on vowel rounding and an explanation is proposed based on Gunnar Fant's acoustic phonetic model for vocal tract configurations and on vowel spacing.

There is general agreement among phoneticians that the parameters to describe vowel positions in vowel space are: (1) height, (2) advancement and (3) rounding. The traditional I.P.A. chart suggests that vowel height can be distinguished by four major divisions in height with the possibility for placing non-cardinal vowels between any of the four divisions. The maximum attested number of vowel height categories appears to be five from the data of Traunmüller (1982). These divisions are labeled as high, mid-high, mid, mid-low and low. Also, Ladefoged (1993) uses this number of divisions. Vowel advancement is distinguished by three divisions in the I.P.A. Chart; namely, (1) front, (2) central and (3) back. The vowels found in the front and back categories are labeled as peripheral vowels and the central vowels are called interior. The most frequently found vowels are those in the peripheral system and are related to the first eight cardinal vowels. The last parameter of rounding is divided into two types: (1) vertical compression of the lips and (2) protruded lips. In most languages, the two types are articulated together. However, languages can employ these independently (Ladefoged and Maddieson, 1996). The combination of the values of these parameters can yield 60 possible vowels. The modal number of vowels, roughly 31% of languages, is five vowels. Languages that use fifteen vowels or more is 0.6%.

The first eight (primary) cardinal vowels are [i], [e], [a], [ɑ] [ɔ], [o] and [u]. The vowels are unrounded in the front vowels and increasingly rounded in the back. They are much more frequent across languages and are said to be maximally distant from each other in perceptual space. The secondary cardinal vowels [y] [Ø] [œ] [ɶ] [ɒ] [ʌ] [γ] and [u] are rounded in the front position and are increasingly unrounded in the back position. This group is much less frequent across languages.

The rounding parameter in the secondary cardinal vowels appears to adhere to several language families, to wit, Indo-European, Ural-Altaic, especially in the Turkic sub-group where vowel harmony is prevalent, Sino-Tibetan and sporadically in Amerindian languages and languages of the Caucasian group.

2. *Cross-Language Data*

Two major sources for a survey of phonetic types are Maddieson's, *Patterns of Sounds* (1984) and Ruhlen's, *A Guide to the Languages of the World* (1977). Some further details were drawn from Ladefoged and Maddieson's recent work, *The Sounds of the Languages of the World* (1996). Maddieson's work consists of 317 phonetic inventories from all language families. Lists of the languages that contained each phonetic type were made and generalizations based on descriptive statistics and phonetic typology were made. Ruhlen's book mainly consists of 706 phonetic inventories with a general genetic classification of languages and comments on a few areal, genetic and some typological features for the large groupings.

In terms of frequency of occurrence of rounding contrasts, the high vowels are associated with a greater incidence of rounding contrast than the low vowels. In the front vowel position the ranking of the incidences from Ruhlen's work were as follows: [y] (88) > [Ø] (80) > [œ] (10) and Ladefoged and Maddieson report one case of [Œ] from Bavarian German. For the first three vowels, the corresponding unrounded vowel counts are: [i] (665) > [e] > (508) > [ɛ] (240). This indicates the preference for unrounded over rounded. This suggests that rounded is the "marked" value for front vowels. In the smaller set of languages from Maddieson, the same ranking holds, [y] (20) > [Ø] (11) > [œ] (7). For the back vowels, the opposite occurs in that the rounded vowels predominate over the unrounded. The rankings for the unrounded from Ruhlen are as follows: [ɯ] (58) > [γ] (21) > [ʌ] (7). The rankings for the rounded counterparts are: [u] (610) > [o] (543) > [ɔ] (202). Similarly, for Maddieson's data, the order is [ɯ] (13) > [γ]] (7) > [ʌ] (3) and [u] (254) > [o] (133) >[ɔ]] (100). This suggests that the unrounded setting is the marked category for back vowels.

Can the data be organized in terms of Greenbergian conditional universals (1966)? In order to formulate implicational universals about these stops the presentation of counts in tetrachoric tables as suggested by Croft (1990) is used. Croft's tetrachoric tables derive from the truth-tables in symbolic logic. The truth-table of interest is material implication defined as follows:

p	→	q
True	True	True
True	False	False
False	True	True
False	True	False

where p → q means if p then q and all combinations of true and false for p and q given the value of the complex statement in the center column.

The analogous pattern for typology is, for example;

p	**→**	**q**
yes	yes	yes
yes	no	no
no	yes	yes
no	yes	no

where "yes" under [y] [i] means the phonetic type of interest is attested in one or more languages. The "yes" in the center column means that the combination of [y] and [i] are found in one or more languages, or the combination of no, yes means that there are languages with no [y] but with a [i]. Croft prefers to put this in a tetrachoric table:

	y	**no y**
i	yes	yes
no i	no	yes

The tetrachoric tables for Ruhlen's data are as follows for the front vowels:

	y	no y			no Ø		œ	no œ
i	73	592	e	58	446	ɛ	10	240
no i	0	45	no e	4	202	no ɛ	0	460

From his data the implicational statements are as follows:

(1) If a language has an [y], it also has an [i]

(2) If a language has an [Ø], it also has an [e]. However, there are 0.56% exceptions. In this case, it is safer to state this probabilistically; i.e., if a language has an [Ø] it is highly likely it has an [e].

(3) If a language has an [œ], it has an [ɛ].

The tetrachoric table for y and Ø is

	Ø	no Ø
y	71	17
no y	9	613

It indicates that [y] dominates over [Ø] but there are a sizeable number of counter examples i.e. nine in all.

By and large, the front unrounded vowels dominate over their front rounded counterparts and the higher vowels tend to be rounded over their lower counterparts. The back vowels have a strong tendency to be rounded over unrounded as seen in the tetrachoric tables below.

	ɯ	no ɯ		γ	no γ		ʌ	no ʌ
u	36	574	o	19	524	ɔ	5	197
no u	21	79	no o	2	165	no ɔ	2	506

Only "weak" implicational statements can be made for the back vowels.

(1) If a language has an [ɯ], it has a 60% chance of having an [u].
(2) If a lenguage has an [γ], it is highly likely to have an [o].
(3) If a language has an [ʌ], it is highly likely to have an [ɔ].

There is enough data to conclude that the occurrence of [ɯ] dominates over [γ] as seen in the tetrachoric table below:

	γ	no γ
ɯ	19	36
no ɯ	02	653

In general, rounded back vowels take precedence over unrounded back vowels and unrounded high back vowels predominate over their lower counterparts.

In Maddieson's data, roughly the same pattern holds with a few counter examples. A list of the implications is presented below. The number after the vowel in the antecedent indicates the number of languages that are set-theoretically included in the number of languages in the antecedent. Some of the antecedents will have an "or" in it which indicates that a vowel in the antecedent is included in languages with either one vowel or another.

The list is:

y (20) → i (271)
Ø (11) → [e or ɛ] (116) with 3 exceptions
œ (7) → ɛ (116)

Again the front unrounded dominate over the rounded.

Also: Ø (10) → y (21) with 3 exceptions
œ (7) → y (21)

The vowel [y] dominates over [Ø] and [œ].

Furthermore, Maddieson's data for the back vowels is similar to those of Ruhlen:

ɯ (13) → u (254) with 7 exceptions
ɣ (17) → [o] or [ɔ]
ʌ (7) → ɔ (100) with 1 exception

With fewer numbers than above [ɯ] dominates over [ɣ] and [ʌ]

3. Vocal Tract Models and Vowel Spacing

From the data presented above, several conclusions drawn from them were made: (1) Lip rounding in the front vowels and lip spreading in the back vowels occur more often with high vowels rather than lower vowels. (2) Rounding occurs more frequently with the more normal front unrounded vowels than does spreading with the more normal back rounded vowels and (3) spreaded or neutral lip shape occurs most often with front vowels and rounded lip position with back vowels.

The first observation can be addressed with the use of a vocal tract model designed by Fant (1960) based on X-ray photography and palatography. Figure 1 shows such a representation of the vocal tract with the 3rd dimension not presented. Fant divided the vocal tract up into cross-sectional areas for each centimeter as one moves from the lips to the glottis. The pharyngeal area however was represented by a much larger area. These cross-sectional areas are laid out in a straight line from the glottis to the lips in figure 2. He finally represented these areas (acoustic tubes) as electronic resonant circuits so that he could manipulate three parameters: (1) the place of constriction, (2) the degree of constriction measured in area between the tongue and the palate and (3) the protrusion of the lips.

This is called a three-parameter vocal tract where L/A is the lip protrusion/area of lip rounding, Amin is the area of maximum constriction and Xmin is the place of constriction. Fant electronically generated the first five resonant frequencies for a set L/A values, a fixed Amin value and a varied Xmin value from the lips to the glottis. The results for the first three formants (F1, F2, F3) are represented in figure 3, called a nomogram.

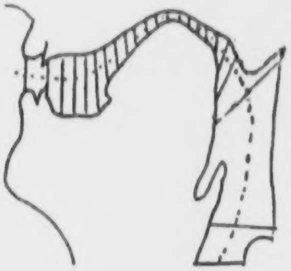

Figure 1

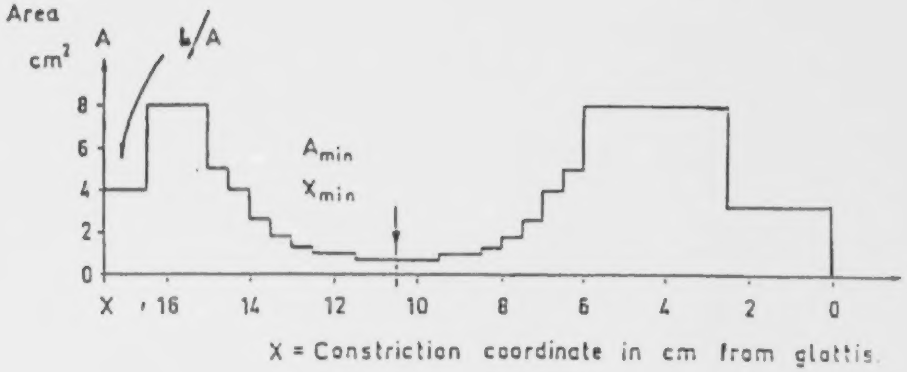

Figure 2

For each formant or resonant frequency there are two curves. The solid curve represents Amin = 0.65 cm² with no lip rounding and protrusion. The dotted curve represents the corresponding formant value with the same Amin but with the lips protruded 1 cm and the area of lip rounding being 0.16 cm².

Figure 4 represents a nomogram for a minimum area of 2.6 cm² which represents an articulation for a wider vocal tract. Again the solid lines represent the first three formants when the lips are not rounded and the dashed lines are the formant values for the protruded lip position. In both figures, lip protrusion and closing tune all formant values to a lower frequency value. The minimum constriction point for the vowels [i] and [e] is roughly between 13 and 12 centimeters from the glottis, and the vowel [u] point of maximum constriction is 10 centimeters from the glottis. The

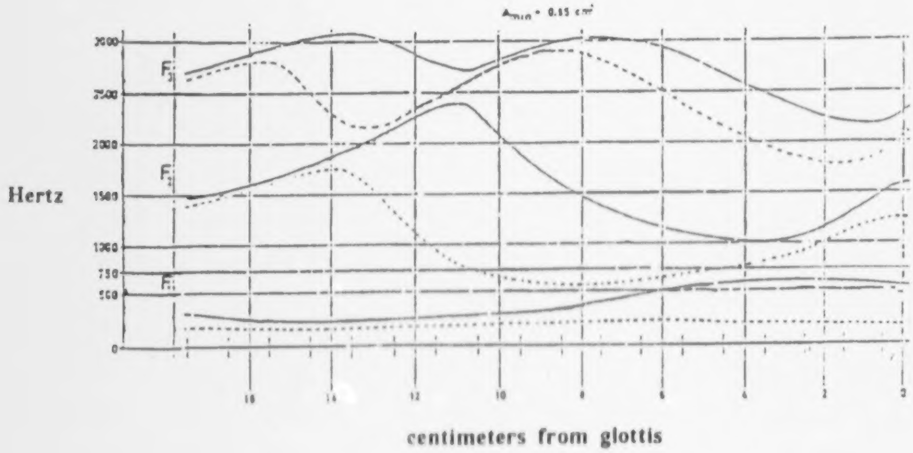

Figure 3

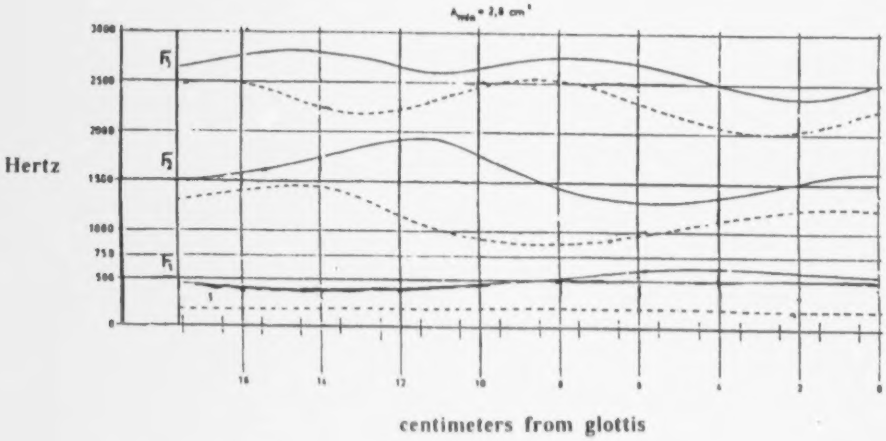

Figure 4

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point of constriction for [o] is 8 centimeters from the glottis and "low" vowels such as [a] has an Xmin value of 5 centimeters from the glottis. The greatest acoustic change occurs in the [u] region where lip rounding produces a change of 1300 Hz in the second formant. The change of F2 caused by lip rounding at an Xmin of 12 to 13 centimeters for an [i] vowel is roughly 700 to 800 Hz. The smallest change in formant patterns occurs at Xmin values for low vowels. When figure 3 is compared with figure 4, the effect of having a wider aperture at Xmin represented as Amin indicates that the effect of lip rounding produces a smaller change in formant value for all formants. This observation provides an answer to the first question which was why lip rounding occurs more frequently across languages in higher vowels than lower vowels. The answer is that the same articulatory gesture is less effective in the acoustic domain for lower vowels. The answers to the last two questions may be more easily seen if the values of the first two formants of the primary and secondary cardinal vowels are plotted on a formant chart. Thus, it can be observed in figure 5 (on the following page) that the primary cardinal vowels are maximally spaced from each other in acoustic and hence perceptual space (Catford, 1988). Hence, there is minimal risk of confusion in noisy contexts. The front rounded vowels are close to their unrounded counterparts but the back unrounded vowels shift significantly more from their rounded counterparts. The back unrounded vowels thus become very close to the central vowels which may substitute for them in time. This is to say the front rounded vowels are in a unique position in acoustic space whereas the back unrounded vowels may coalesce with or be interpreted as central vowels.

In summary, the primary cardinal vowel types are more frequent because of maximal vowel spacing. Higher rounded vowels are more frequent because lip rounding is more acoustically effective for narrower constrictions and front rounded vowels are more frequent than back unrounded vowels in the secondary vowel pattern because the spreading of the lips causes such a formant to shift so that the back unrounded vowels are acoustically close to the central vowels.

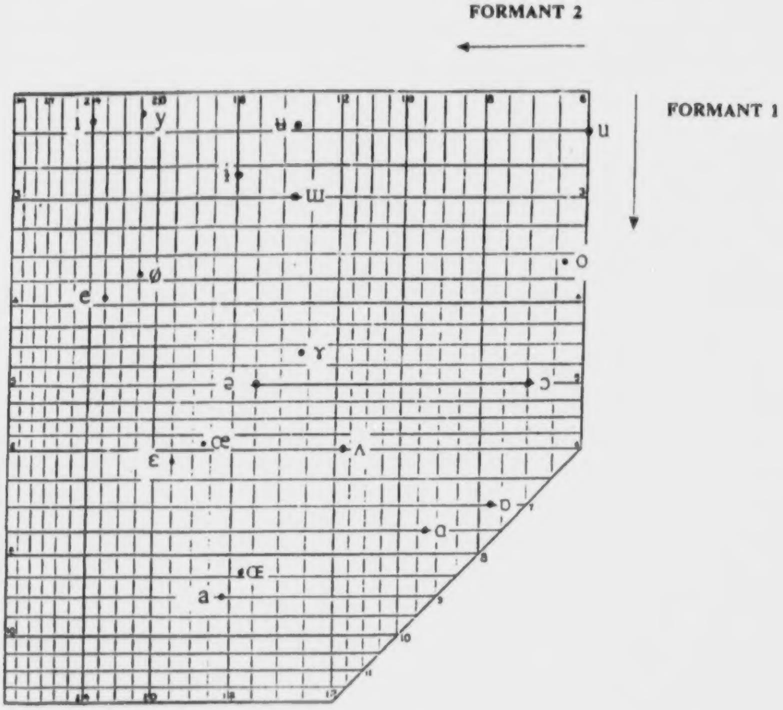

Figure 5

REFERENCES

Catford, J.C.1988. *A Practical Introduction to Phonetics.* Clarendon Press: Oxford

Croft, William.1990. *Typology and Universals.* Cambridge: Cambridge University Press

Fant, Gunnar.1960. *Acoustic Theory of Speech Production.* 's-Gravenhage: Mouton & Co.

Greenberg, Joseph H. 1966. *Universals of Grammar.* 2nd ed. Cambridge, Mass.: MIT Press.

Ladefoged, Peter, and Ian Maddieson. 1996. *The Sounds of the World's Languages.* Oxford: Blackwell Publishers Inc.

Maddieson, Ian. 1984. *Patterns of Sounds.* Cambridge: Cambridge University Press.

Ohala, John J. and James Lorentz. 1977. "The Story of [W]: an Exercise in Phonetic Explanation for Sound Patterns." Proceedings of the Third Annual Meeting of the Berkeley Linguistics Society. Berkeley: University of California.

Ruhlen, Merritt. 1976. *A Guide to the Languages of the World.* Stanford.

Traunmüller, Hartmut. 1982. "Vokalismus in der westniederösterreichischen Mundart." *Zeitschrift für Dialektologie und Linguistik* 2.289-333.

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UNDERSPECIFICATION AND FEATURE GEOMETRY: THEOREMS OF A RETICULAR THEORY OF LANGUAGE

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0. Introduction

0.1 The Present Study. Generative phonology dates to Halle 1959. Halle's stated purpose there was to develop a phonological component that would fit into the *Syntactic Structures* (SS) model Noam Chomsky had proposed two years earlier. Subsequently a number of theories of generative phonology emerged. Two of the more recent theories in the family of generative theories are underspecification and feature geometry. They are central to this study.

Specifically, I sketch the characteristics of underspecification and feature geometry,[1] their antecedents, purposes, operation, and problems. I then present a generalized description of Russian syllable onsets and show that both underspecification and feature geometry are derivable from, i.e. are theorems of, a relational network theory, specifically cognitive stratificational (CS) theory.

0.2 Theories and Theorems. Some years ago James Marchand remarked at a talk that many Chomskyan linguists do not understand the difference between a theory and a theorem.[2] Just in case Marchand was underestimating the breadth of the misunderstanding, I begin by outlining those differences, with apologies for any oversimplifications.

A theory is a logically-defined, self-contained means of explicating and expanding a body of knowledge. It has a set of axioms and postulates, i.e. statements that are assumed to be true. Axioms and postulates are assumed to be true because they cannot be tested[3] or have never been shown to be false.[4] Though mathematicians treat axioms and postulates as the same thing,[5] it is possible to draw a reasonable distinction between them: for a given theory, an axiom is a member of the axiom/postulate set of the family of theories to which that theory belongs. Thus all mathematical theories accept the axiom of self-identity [a = a]. Postulates are those statements added for a particular mathematical theory. For example, Euclidean plane geometry accepts the axiom of self-identity and postulates that there is only one line through a particular point outside of a given line and parallel to that line. The set of axioms and postulates a theory adopts is its foundation, but only that.

With the axiom and postulate set and the accepted rules of logical inference, we can prove further statements about the theory. These statements are theorems of the theory. Given the above Euclidean postulate, we can prove many theorems, e.g. that the sum of the angles of a triangle is equal to a straight angle.

If you change or add or delete anything from a theory's postulate set, you have a new theory. So Lobachevsky's geometry modifies the above axiom to state that there is an indefinitely large number of parallel lines through that point. Riemann's geometry denies the existence of parallel lines, making this postulate vacuous. In either case two consequences follow: 1) the theorems that can only be proved using this postulate are eliminated; 2) theorems which could not be proved in the earlier theory can now be proved.

Thus the total logical body of a theory consists of the axioms of the family of theories the theory belongs to, the postulates particular to the theory, and the theorems that can be proved, directly or indirectly, from these axioms and postulates.

1. The Evolution of Generative Phonology

1.1 Jakobson's Theory of Phonology. Halle 1959 adopted a number of the characteristics of Jakobson's theory of phonology. An outline of those characteristics will be useful.

Jakobson took the concept of phonemic features to its logical conclusion, insisting that the features themselves are phonemic. He attempted to develop a set of distinctive (= phonemic) features based on the acoustics of speech sounds (Jakobson et al. 1951) which are universal yet language-specific. Acoustic features are a reasonable choice. Speech sounds are produced by speech articulators and apprehended by the ears. Thus they represent the output from and input to a human linguistic system during the communication processes.

Conversely, the twin goals of universality and language-specificity seem to be contradictory. However, what Jakobson sought was a set of features that would account for all of the phonemic oppositions of each of the world's languages and dialects. Thus the universality emerges from the sum of individual applications to single languages.

Jakobson also included the concept of markedness in his phonology by making his features binary (±). There is much more to Jakobson's phonology, but these are the parts essential to an understanding of the bases of generative phonology.

1.2 A Sound Pattern of Russian. Morris Halle modified the theory of Jakobson et al. 1953 to produce a phonology compatible with the SS model of transformational-generative theory. He adopted universal, binary acoustic features, but he rejected the idea of contrast, offering a theorem "proving"[6] that contrast is wasteful and hence unnecessary. However, the "proof" fails, so Halle's disavowal of contrast becomes a postulate, perhaps the defining postulate of generative phonology. Halle retained some other characteristics of Jakobson's theory under different names and still others in modified fashion. Yet there is no doubt that Halle 1959 defined a new theory.

Halle's version of generative phonology developed through Chomsky & Halle 1968, when articulatory features were reintroduced. Since this was a one-to-one substitution, it was really a re-naming[7] rather than a new theory. But around the same time other linguists in the Chomskyan circle (hereafter C-linguists) began expressing doubts about certain characteristics of generative phonology, in particular the phonological transformations called P-rules. There seemed to be no limit on the form or power of P-rules, and several linguists proposed constraints on them. Postal and Vennemann proposed different types of "naturalness" constraints on the form of rules. Kisseberth observed relations between rules that seemed to "conspire" to certain types of phonological outcomes. During the 70's these types of reservations and observations started being added to generative phonology in the form of postulates, producing new but related theories in the same family.[8] The name "generative" phonology was current through the mid-70's and continued in a more generic (family of theories) sense for some time, but soon the new theories began adopting new names.

These new theories were of two types. The first type aimed at describing things the standard theory could not. For example, autosegmental phonology reintroduced the syllable as a structural element, and not merely as a string of segments between syllable boundaries. The second type of theory aimed at constraining the mechanism of generative phonology. Underspecification and feature geometry are of this type.

In the context of standard generative phonology, both types of theory require the modification of the postulate set, whether the proponents so phrased their thinking or not. The result qualifies each of these proposals as a new theory. This whole process produces a family of theories related to generative phonology but different from it. I call this family of theories Chomskyan phonology (hereafter C-phon). This includes standard generative phonology as it evolved and both types of related theories.

Now the two types of new theories differ in an important way. The former type merely corrects shortcomings in standard generative theory, eliminating theoretical artifacts which should never have been postulated in the first place. The second type improves the theory being used in a metatheoretical sense, assuming that there is no loss in the data being accounted for.

In the present study I concentrate on the two theories of the second type mentioned above: underspecification and feature geometry. In a practical sense they go together, though they are distinct. Moreover, they improve the abilities of C-phon, though there are problems with both of them that I can shed some light on. An outline of the critical aspects of these theories follows.

2. *Two C-phon Theories*

2.1 Underspecification. It has always been a part of C-phon to specify no more features than necessary anywhere in a description. This is only good sense. Given universal features, some are clearly not necessary in a particular language, e.g. stress in Czech.

This philosophy is fundamental to Underspecification (US). Several featureminimizing strategies are adopted. First, gaps are placed in phonological representations so that rules can be expressed more simply and insightfully (Kenstowicz 1994:162, Roca 1994:77). Second, the assignment of features by default rules is maximized.[9] Third, redundancy rules are applied as late as possible (Roca 1994:80). Roca (1994:62) traces the formal theory to Archangeli's Feature Minimization Principle (Archangeli 1984:50):

> "A grammar is most highly valued when underlying representations include the minimum number of features necessary to make different the phonemes of the language."

The theoretical postulate involved here is easily stated in informal fashion: in each case choose the approach that reduces the number of features specificed per segment to a minimum.

2.2 Feature Geometry. Feature geometry (FG) draws the features for a particular segment from a feature tree. The features are assigned according to a pre-set order. However, the particular branch point chosen limits the set of features available for assignment at the next branch point. The postulate here is that some features (e.g. place of articulation features) are more closely related to each other than to other features (e.g. major class features). All features not assigned after the tree and the application of P-rules are assigned by redundancy rules. Thus FG, while having its own distinguishing postulate, contributes to the postulated purpose of US.

2.3 Some Problems. There are, however, problems with both theories. The feature sets are presumably universal. It seems reasonable to expect that feature trees are also universal. Still, the history of C-phon has a series of disputes over the number and inventory of features. Similarly, there are disputes over the nature, number, and placement of nodes on FG's feature tree.

Underspecification has its own problems. For example, the interplay between contrast and the transparency of intervening segments to feature spread is "not fully understood" (Roca 1994:76). There is an ongoing discussion of the relative merits of radical vs. constrained underspecification. Worse, given binary marking and 18 features, the average number of features per segment should be a little over 4 ($\log_2 18$). Few descriptions are anywhere near that figure.[10] In none of these cases is there an obvious way out within C-phon.

2.4 The Current Situation. US and FG are two distinct theories in the C-phon family which seem to be not only compatible but complementary. Both are worthy efforts at constraining and extending C-phon, incorporating phonological concepts that go back to Jakobson et al. 1953 and further. But both have problems with no apparent resolution and no non-arbitrary way of judging between alternative proposals within the C-phon family.

In the C-phon context I can offer no answers. I propose instead a radically different approach. Specifically, I propose an approach via a relational network description, using Russian phonology as the starting point for data.

3. Russian Consonantal Phonology

3.1 Preliminaries. The present study is based on a fully generalized description of onsets of the Russian syllable, exclusive of morphophonemic alternation. I focus on the distribution of consonantal phonemes across onsets. The expression "fully generalized" means that it includes all possible onset clusters, not just those that happen to occur. It also shows how individual phonemes are related to features.[11] The features are singulary, phonemic, and articulatory, though they refer to the articulators, rather than to the place of articulation. The inventory of feature names is given in table 1.

Table 1: Phonemic Features for Russian Obstruent Onsets

Manner features	**Place features**
Cl = complete oral closure	Lb = labial
Sp = spirant friction	Ap = apical
Gr = central groove in the tongue	Fr = frontal
Y = voice	Do = dorsal

I begin with a verbal description of the onset clusters, then proceed to a relational network description. Finally, I return to a consideration of UF and FG, given the insights of the relational network description.

3.2 Russian Obstruent Phonemes. Russian has, in traditional Bloomfieldian[12] description, 26 obstruent phonemes. These are presented in table 2 (following page). All stops and most spirants[13] are paired voiced-unvoiced and hard-soft (= with fronto-palatal coarticulation). The affricates are unpaired for either. Both are phonemically unvoiced; /c/ is always hard and /c/ is always soft. However, though there is no phonemic function for [c'], native speakers of Russian can pronounce it, e.g. in words borrowed from Ukrainian or Bulgarian. This suggests that a gap in the functional inventory does not require a structural gap, a point to which I return below.

Table 2: Russian Obstruents (Traditional)

	Labial		Apical		Frontal		Dorsal	
		sft		sft		sft		sft
Closure	p	p'	t	t'			k	k'
vcd	b	b'	d	d'			g	g'
Gr Rel			c			č'		
SpirFrc	f	f'	s	s'	š		x	x'
vcd	v	v'	z	z'	ž			

Now given a group like /p p' b b'/, it is possible to factor out the recurrent partial identities. That is, /p'/ is /p/ with softness ('), /b/ is /p/ with voice (Y), and /b'/ is /p/ with both voice and softness. Thus it is possible to represent the tetrad algebraically as (p & (' , ϕ) & (Y , ϕ)), where the occurrence of softness and voice is structurally optional. If we adopt the formalism of using square brackets for structural optionality, we get (p & ['] & [Y]). Taking this factoring to its logical conclusion produces the set in table 3.

Table 3: Russian Obstruents (Generalized)

	Lb	Ap	Fr	Do	
Cl	P	T		K	
Gr		c^{a,b}	č^{a,b}		[Y][']
Sp	F	S	š^{a}	x^{b}	

^{a}not contrastive for softness
^{b}not contrastive for voice

Russian obstruent-initial syllables may have one-, two-, or three-place onsets. Some typical examples of two- and three- place onsets are given in table 4.

Table 4: Typical Russian Obstruent Clusters

Three-place onsets											
unvoiced	tšč'	fšč'	pst	fst	šst	ksk	psk				
voiced			bzd'	vzd							
Two-place onsets											
unvoiced	fč'	pc'	šč'	sc	pt'	kt	tk	tf	sx	sk	
voiced					bd'	gd'		dv		zg	dv'

The onset clusters occur hard (plain) or soft (with fronto-palatal coarticulation), voiced or unvoiced, as indicated. The unvoiced outnumber the voiced in both type and token, as predicted by Jakobsonian markedness theory. The same holds true for hard vs. soft, even though softness is contrastive for nasals and liquids, as well as for obstruents. That is, the hard (plain) onsets outnumber the soft (palatalized) in both type and token, again as Jakobsonian markedness predicts. The details are beyond the scope of this study, but the nature of the cluster regarding voice and softness is essentially determined by the phonemic character of the final consonant. That is, if the final obstruent is phonemically voiced, the entire cluster is phonetically voiced. Similarly, if the final consonant is phonemically soft, the cluster is (or tends to be) phonetically soft (cf. Sullivan 1974).

In addition to the cluster types given above, any single obstruent can occur as an onset. With this information we can proceed to the description.

3.3 An Algebraic Description. If we factor out voice and softness, as suggested above and as justified in Sullivan 1974, it is possible to produce a reasonable description. There are four kinds of three-place onsets attested: a stop followed by a spirant followed by an affricate (hereafter st-fr-af), st-fr-st, fr-fr-st, and fr-fr-af. Thus the first position in the onset is filled by a stop OR a spirant, the second by a spirant, and the third by a stop OR an affricate. This description is stated algebraically in (1).

(1) Clst / (st , fr) fr (st , af)

In spite of its algebraic appearance, (1) and the tactic formulae that follow represent relational networks in which the mnemonic abbreviations are merely labels on points in the network. The comma represents an OR relation, the '/' represents the top-to-bottom hierarchy, and simple left-to-right ordering represents an ordered AND relation.

There are several types of two-place onsets: fr-af, st-af, st-st, fr-st, st-fr, and fr-fr. The first four are predicted by (1) if we simply let the second position be structurally optional and left unfilled. Similarly, the last two are predicted by (1) if we simply let the third position be structurally optional and left unfilled. Again using the square bracket convention, this modification of (1) is given in (2).

(2) Clst / (st , fr) [fr] [st , af]

Note that (2) predicts that a stop or a spirant (fr) can occur alone if the zero choice is taken for both optional positions. This leaves only affricates, which can also occur alone, but which are not predicted by (2), as it stands. Lone affricate onsets are added to (2) in (3).

(3) ObstrClst / ((st , fr) [fr] [st , af]) , af

Recall that obstruent clusters are either voiced or unvoiced. Voice has phonemic function. It is structurally optional in the phonotactics of the syllable. This information is added to (3) in (4).

(4) VObstrClst / (((st , fr) [fr] [st , af]) , af) [Y]

In order to put softness in the correct onset position, I must include some outline facts concerning onsets with sonants (m, n, r, l, w[14]) and j. There are two types of onsets with sonants. The first type has a sonant added to the end of an obstruent cluster. As expected, a given obstruent onset with a sonant is rarer than the same onset without a sonant, but the occurrence of a sonant is structurally optional. This information is added to (4) in (5).

(5) ConClst / ((((st , fr) [fr] [st , af]) , af) [Y]) [Sn]

The other type of cluster that occurs with sonants is a sonant-sonant cluster. There are many interesting distributional facts about sonant-sonant clusters that are easily incorporated in a phonotactic description of Russian syllable onsets, but they are beyond the scope of this study. With this stipulation, though, the sonant-sonant clusters are easily added to (5) in (6). (6a) uses an intermediate label to reduce the amount of bracketing needed to describe the hierarchy. (6b) goes from top to bottom in one step.

(6 a) ConClst / (VObstrClst , Sn) [Sn]
b) ConClst / (((((st , fr) [fr] [st , af]) , af) [Y]) , Sn) [Sn]

Now we can introduce softness. It is at the level of (6a) that softness is related to onsets. Recall that not all consonantal phonemes are contrastive for voice. Still, voice is structurally optional and follows onset. Similarly softness follows the cluster and is structurally optional. These facts are added to (6) in (7).

(7 a) SftClst / ConClst [']
b) SftClst / ((((((st , fr) [fr] [st , af]) , af) [Y]) , Sn) [Sn]) [']

Next consider /j/. Two observations give us the needed information about this phoneme. First, /j/ is always phonetically soft but cannot be phonemically hard. Thus no softness contrast can be established for /j/. Therefore it must be related to the onsets above the level of the soft cluster. Second, /j/ can never occur in a cluster. It must always occur alone. Thus its relation to other onsets is an OR relation. This is added to (7) in (8).

(8 a) Onset / SftClst , j
b) Onset / (((((((st , fr) [fr] [st , af]) , af) [Y]) , Sn) [Sn]) [']) , j

Finally, consider the obstruents themselves. They group into three sets: stops, spirants, and affricates. The sets are related to the remaining phonemic features in (9).

(9 a) st / (Cl & Lb) , (Cl & Ap) , (Cl & Do)
b) fr / (Sp & Lb) , (Sp & Ap) , (Sp & Fr) , (Sp & Do)
c) af / (Gr & Ap) , (Gr & Fr)

In each case, the manner feature can be "factored out" algebraically. The result is given in (10).

(10 a) st / Cl & (Lb , Ap , Do)
b) fr / Sp & (Lb , Ap , Fr , Do)
c) af / Gr & (Ap , Fr)

The combination of (10) with (8b) provides an algebraic description of the possible consonantal onsets of the Russian syllable, given the stipulations on sonant-sonant clusters and morphophonemic alternation. It is a reticular description. Yet the greater implications of this description may not be obvious. To make them explicit I turn to a graphic model.

3.4 A Graphic Description. The graphic description is given in figure 1 (following page). The labels on figure 1 correspond to the terms in the algebraic formulae (1)-(10). The notation is simple: lines represent connections between points and nodes define the relations between lines. The logical type of node is reflected in the shape of the node: an AND relation is given by a triangle, an OR relation by a square bracket. Spacing on the plural side of an AND indicates left-to-right linear ordering. The interrelations between AND and OR nodes expresses the structural hierarchy of the onsets in a Russian syllable. Each syllable instantiates a particular example of this hierarchy. Superficially the hierarchy resembles a tree, but it is actually a reticulum,[15] here because of the upward OR nodes.

3.5 Discussion. Consider first the individual phonemes, represented by the diamonds at the bottom of the network. Each phoneme is related to exactly one phonemic feature, a feature that relates to the articulator. Of course, the Bloomfieldian phoneme /b'/ represents the intersection of four features: Lb, Cl, Y, and '.[16] Lb is the only feature directly related to /b'/. Cl is redundantly related to it at the level of the set of stops. Phonemic voice (Y) is supplied at the level of VObstrClst and phonemic softness (') is supplied at the level of SftClst.

Next consider that the diamonds related to Lb, Y, and ' have relations to the left, to their phonemic function. Of the four features that distinguish /b'/ from all other phonemes of Russian, only Cl has no functional relation. Cl, however, has two effects. First, it is the feature that marks all stops. This is expressed in its relation to lower tactic levels. Second, it is the feature that signals a consonant in either first or third position of an obstruent cluster. This is expressed in its relation to higher tactic

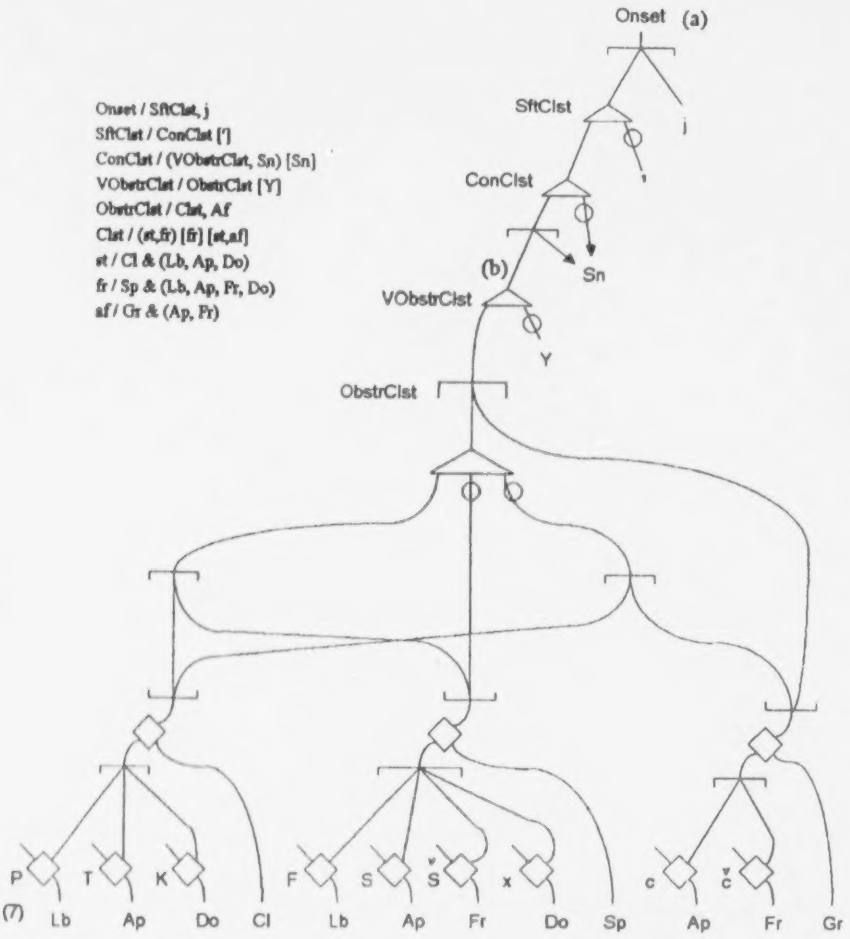
Onset (a)
Onset / SftClst, j
SftClst / ConClst [']
ConClst / (VObstrClst, Sn) [Sn]
VObstrClst / ObstrClst [Y]
ObstrClst / Clst, Af
Clst / (st,fr) [fr] [st,af]
st / Cl & (Lb, Ap, Do)
fr / Sp & (Lb, Ap, Fr, Do)
af / Gr & (Ap, Fr)
SftClst
j
ConClst
'
Sn
(b)
VObstrClst
Y
ObstrClst
P
T
K
F
S
Š
x
c
č
(7)
Lb
Ap
Do
Cl
Lb
Ap
Fr
Do
Sp
Ap
Fr
Gr

Figure 1: Russian Consonant Onsets

levels. It defines the unique syllable distribution of stops, a distribution matched by no other class of consonant.

Thus only Lb is a directly phonemic feature for /b'/. Cl is a determined class feature. Voice and softness are primarily cluster prosodies that are themselves dependent phonemes, rather than features of a particular phoneme. I repeat: /b'/ does not exist; it is a mental construct only.

It could be claimed that I reach this description by ignoring presumably universal C-phon features like [consonantal] and [syllabic]. However, [+cons] could be supplied at (a) on figure 1, [-syl] at (b). There are other features, e.g. the tongue root features, that are simply irrelevant to Russian phonology and are therefore ignored in this approach. But remember that a CS approach is individualist first, rather than universalist. Ignoring irrelevant features is not a shortcoming.[17] In sum, under a CS relational network approach, Russian phonology is about the phonological system of a speaker of Russian, not about a subset of the phonology of LANGUAGE.

4. Underspecification and Feature Geometry Revisited

4.1 Underspecification. The defining postulate for underspecification involves the minimization of features specified per segment. Figure 1 specifies exactly one feature per phoneme. This would seem to be an irreducible minimum.[18] Now figure 1 also shows that this minimum results from the generalization of phoneme distribution over the syllable. That is, it is an inevitable consequence of a complete description combined with the principles of mechanical simplification.

4.2 Feature Geometry. Figure 1 also shows a feature tree, the source of which is the relation of phonemic features to syllables.[19] The tree could be separated from the syllable and made topological, i.e. generalized over all languages. This would produce something like the universal tree that the feature geometry branch of C-phon has been seeking. But such a topological extension of particularist phonological considerations is the source of problems. The move from a geometric description of an object to a topological one involves choices, decisions as to which characteristics of the object are central and essential (phonemic?) and which are peripheral and can be ignored (phonetic?). Clearly the choices made can affect the order of nodes in the tree and even the precise inventory of nodes. Hence the ongoing disputes in feature geometry articles.

4.3 Discussion. The resolution of problems with both underspecification and feature geometry is much more than just a case of fine tuning. It would require a shift from the universal and mathematical to the particular and cognitive. Understand that I do not criticize the intent of either C-phon theory. Their intent is laudable and good work has been done in their names.

However, the description in cognitive-stratificational theory's relational network approach shows two things. First, CS derives the defining postulates of underspecification and feature geometry. Thus they are C-phon theorIES, but they are CS theorEMS. Moreover, the applications of these theorems in a relational network approach produce results superior to those achieved in C-phon efforts.

Second, a commitment to universalist considerations over cognitive is at least one source of US and FG problems. I repeat: I do not criticize the intent behind those C-phon efforts or the positive results they have achieved. I criticize the universalist/tree approach by which C-phonologists have sought to achieve their results. I suggest that C-phon could have saved a great deal of time by reading us thirty years ago.

NOTES

[1] With apologies for oversimplification.

[2] In his words "a theory OF language and a theory IN language" (his emphasis). Note that he did not make this comment about Chomsky himself.

[3] Or cannot be tested at the time, like Copernicus's postulate of heliocentricity.

[4] In empirical science an observed fact, which the heliocentricity postulate now is, have the same status as an axiom or a postulate. I herein ignore the characteristics particular to empirical science in the interest of space considerations.

[5] That is, the Axiom of Choice is actually a postulate of Set Theory.

[6] The proof is fatally flawed in many ways (cf. Lamb 1966, Johns 1969, and Sullivan 1974) .

[7] Producing a "notational variant," to use Chomsky's phrase.

[8] Morris Halle contributed to this ongoing process.

[9] E.g. the feature [+ spread glottis] is assigned at the start of an accented syllable; [- spread glottis] is assigned elsewhere (Kenstowicz 1994:153) .

[10] Caroline Wiltshire of the University of Florida informs me that Archangeli 1984 does approach this minimum. I do not know what compensatory expenses there are in additional rules.

[11] The feature set I use is a subset of the one introduced in Lamb 1966 and used successfully over the years in articles by Lockwood and me, e.g. Lockwood 1969 and Sullivan 1996.

[12] I do not use "taxonomic," which has become a pejorative in C-lin literature.

[13] The tradition is that Yale uses spirant, Harvard fricative. In order to differentiate the symbols I use *st* for stop, *fr* for spirant/fricative, *Fr* for Frontal.

[14] Phonetically [v].

[15] Latin for 'net', as H. A. Gleason, Jr., pointed out many years ago.

[16] Which is just what Bloomfield said.

[17] Still, such features could be distributed over the syllable, just as oral closure is and [+cons] could be. *NB*: I recognize no need for a phonemic feature like [± cons] and have never seen a structural justification for it.

[18] If the need for a hypophonemic (linguistic phonetic) stratum can be demonstrated, the total inventory of phonemic place features can be reduced by one. But this is a detail beyond the scope of the present study.

[19] And possibly phonological word or phrase, but these are also beyond the scope of this study.

REFERENCES

Archangeli, Diana. 1984. *Underspecification in Yawelmani Phonology and Morphology*. Cambridge, MA: MIT Ph.D. dissertation.

Chomsky, Noam, and Morris Halle. 1968. *The Sound Pattern of English*. New York: Harper & Row.

Halle, Morris. 1959. *A Sound Pattern of Russian*. The Hague: Mouton.

Jakobson, Roman, E. Colin Cherry, and Morris Halle. 1953. "Toward the Logical Description of Language in its Phonemic Aspect." *Language* 23. Reprinted in Jakobson, Roman, *Selected Writings*, vol. 1, 1971, pp 449-63. New York: Holt, Rinehart & Winston.

Jakobson, Roman, Gunnar Fant, and Morris Halle. 1951. *Preliminaries to Speech Analysis*. Cambridge, MA: MIT Press.

Johns, David. 1969. "Phonemics and Generative Phonology." In: *Phonological Theory: Evolution and Current Practice*, Valerie Becker Makkai (ed), pp. 549-53. New York: Holt, Rinehart & Winston.

Kenstowicz, Michael. 1994. *Phonology in Generative Grammar*. Cambridge, MA: Blackwell.

Lamb, Sydney. 1966. "Prolegomena to a Theory of Phonology." *Language* 42: 536-73

Lockwood, David. 1969. "Markedness in Stratificational Phonology." *Language* 45: 300-308.

Roca, Iggy. 1994. *Generative Phonology*. New York: Routledge.

Sullivan, William J. 1974. "The Archiphoneme in Stratificational Theory." In: *Proceedings of the XIth International Congress of Linguists, 1972*, Luigi Heillmann (ed), pp. 282-99. Firenze: Casa Editrici il Molino.

— 1995. "Binarity, Phonetic Reality, and the Bulgarian Vowel." *LACUS Forum* 21, 130-42.

THE SYLLABIC STATUS OF POSTVOCALIC RESONANTS: EVIDENCE FROM GLOBAL SOUND SIMILARITY JUDGEMENTS

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1. Introduction.[*]

In some traditional models of the syllable, it is assumed that the syllable is composed of onset, nucleus and coda, where the onset consists of prevocalic consonants, the coda of any postvocalic consonants and the nucleus of a vowel, diphthong or syllabic consonant (see Van der Hulst & Smith 1982). Derwing et al. (1988) questioned the sharp boundaries between the subsyllabic units, which are implicit in hierarchical syllable models.[1] The constituency of resonant within the coda has also been challenged and it has been proposed that any model of the syllable should allow for fluctuation between phonological units (Wiebe & Derwing 1994).

In two experimental techniques, a segment count task and a deletion task, Wiebe and Derwing (1992, 1994) found that postvocalic resonants form part of the nucleus, that there was a hierarchy of cohesiveness depending on the resonant following the vowel, and that the complexity of the coda affects the cohesiveness of the vowel-resonant nucleus. In particular, the segment count task yielded some interesting results which suggested a re-evaluation of the nucleus to include glides, postvocalic /r/ and, to a certain extent, postvocalic /l, m, n/. It was not possible to design a deletion task to test the validity of all the results from the segment count task. The nucleus, in particular, is unsuited to a deletion task. A pilot study ruled out a substitution-by-analogy task of the kind used by Dow (1987), as it proved too difficult for the subjects. So, to further explore the status of postvocalic liquids and nasals in the nucleus and to test the validity of the results of Wiebe and Derwing (1992, 1994), it was felt that a sound similarity judgement (SSJ) task might be able to capture speaker intuitions about the nucleus.

Similarity judgement tasks have been used for various purposes with some success (Vitz & Winkler 1973; Lenel & Cantor 1981; Treiman & Breaux 1982). Derwing and Nearey (1986) reported on a number of pilot studies using SSJs in English and suggested that this type of task could be adapted for the purpose of evaluating alternative segmentations. Since then several SSJ tasks have been carried out in other language groups such as Korean, Arabic, Taiwanese (Derwing & Nearey, 1995), and Japanese (Derwing & Wiebe, 1994). These studies all found evidence of higher order elements such as the mora in Japanese, the rime in English, the body or head in

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[*] The author is indebted to Dr. Bruce Derwing and to Martha Gibson, who read earlier drafts of this manuscript.

Korean, and a C-Tier in Arabic.

The task used in the following experiment is based on the Dow (1987) experiment. The stimulus items were designed to test the status of the nucleus, using word-pairs containing changes in pre- and post-vocalic resonants, as well as comparisons between short versus long diphthongs, ingliding versus outgliding diphthongs, and single vowels versus diphthongs[2]. Although stimuli consisted mainly of real words, to test a full range of contrasts, a number of nonce words which obey the phonotactic constraints of PD (Plautdietsch) were used. (See Derwing & Nearey 1995, for a description of similar experiments using four diverse language groups). In order to minimize the effects of orthographic knowledge on participants' judgements, the task was conducted orally in an unwritten language using subjects who were literate in English, but illiterate in their mother tongue.

2. *Method.*

2.1. Subjects. In the present study, 26 adults and 31 school-aged children participated in the similarity judgement task The subjects were all native speakers of an unwritten Low German dialect, PD spoken in southwestern Saskatchewan as well as fluent speakers of English.

Table 1. Types of Word-Pairs Tested

CVVC (8)		**CVΛC** (12)		**CΛVC** (16)	
CVVC-CV**V**C	raut-rait	CVΛC-CV**R**C	feΛt-felt	CΛVC-CΛ**V**C	fΛIt-fΛ⊃t
-C**VV**C	raut-rΛ⊃t	-C**V**ΛC	feΛt-fuΛt	-C**X**VC	fΛIt-fIt
-CV**X**C	raut-rat	-CV**X**C	feΛt-fet	-C**VX**C	fΛIt-f⊃t
-C**XV**C	raut-rot	-C**VX**C	feΛt-fut	-C**X**C	fΛIt-fit

CVRC (24)		**CRVC** (12)	
CVRC-CV**R**C	falt-fart	CRVC-C**R**VC	šrϵt-šmϵt
-C**V**RC	falt-felt	-CR**V**C	šrϵt-šrIt
-CV**X**C	falt-fat	-C**X**VC	šrϵt-šϵt
-C**VX**C	falt-fet	-C**XV**C	šrϵt-šIt

Table 2. Types of Control Items

CVC (12)		**CVCC** (28)		**CCVC** (28)	
CVC-CV**C**	bak-bat	CVCC-C**VC**C	daft-d⊃xt	CCVC-C**CV**C	šp⊃t-švIt
-**C**VC	lot-zot	-CV**C**C	šæps-šæks	-C**C**VC	špal-šval
-C**V**C	dat-dIt	-CVC**C**	rωks-rωkt	-**C**CVC	dv⊃l-kv⊃l
		-C**V**CC	lIçt-laçt	-CC**V**C	kvak-kvik
		-CVC**X**	n⊃ps-n⊃p	-C**X**VC	tvϵš-tϵš
		-CV**X**C	l⊃ft-l⊃t	-**X**CVC	švIt-vIt
		-C**VX**C	zæft-zæs	-**CX**VC	špωk-hωk

2.2 Materials. A set of stimuli was designed to test the constituency of the nucleus as well as the onset and coda. Table 1 outlines the types of pairs tested[3]. All pairs consisted of 3 or 4 phonemes, the first and last of which are obstruents (represented by C). Of the test items, 36 pairs contained diphthongs (those pairs with VΛ, ΛV and VV), 24 contained postvocalic resonants (VR), and 12, prevocalic resonants (RV). Twelve of the control items had a simple CVC syllable structure and 56 had obstruent clusters in the onset or the coda and single vowels in the nucleus, as shown in Table 2 above.

2.3. Procedure. A recording was made of the stimuli by a female, native speaker of PD, a long-time resident of the Swift Current, Saskatchewan area. Each pair of words was repeated once at the rate of approximately one word per second. Subjects were asked to judge the similarity of sounds in the word-pairs on a 7-point scale: 0 (no similarity), to 6 (completely alike).

At the end of the test, subjects were asked to fill out a questionnaire. The questionnaire requested personal details about sex, age, years of attendance in German and English schools, ability to speak and read High German.

3. *Analyses and Results*

Subjects' responses to each item were recorded, a mean response for each type per subject was calculated, and then a single average mean for each type was calculated from all the subject means. These average type means were used in the analyses described below. They were also used to ascertain if any subject-group differences played a role in subject responses.

A series of two-way ANOVAs was run using four word-types (either CVVC, CVΛC, CΛVC, CVRC or CVVC, CVΛC, CΛVC, CRVC) with four subject-groups (two gender groups, male or female; two levels of English Schooling, grades 1-8 or grade 9 and above; two levels of German Schooling, none or some; two levels of Ability to Speak High German, yes or no; two levels of Ability to Read High German, yes or no). Only the ability to read High German was found to be significant. No other subject-group factors were found to be significant. Subsequent ANOVAs were run using four word-groups (W), three match types (M) and two levels of High German reading ability. The results of this analysis will be reported below (section 3.4).

3.1. Hierarchical Cluster Analysis. A complete linkage hierarchical cluster analysis revealed that there are two main groups of responses, Clusters I and II. Refer to Table 3 for the different word pair types (see column 2) and their clusterings (column 1).

Cluster I word-pairs, whose means tended to be higher than those of Cluster II, generally contained a change to a single consonant in the onset or coda. Word-pairs with changes to prevocalic resonants were grouped with those of Cluster I. Therefore, since subjects were treating changes to prevocalic resonants like other changes to initial consonant clusters, this would place prevocalic resonants in the onset rather than the nucleus.

Table 3. Mean Similarity Judgement Per Type

Cluster	Stimuli type	Example	Token number	Mean responses
I	CVCC-CVC**X**	daks-dak	4	3.90
I	CVCC-CVC**C**	dafs-daft	4	3.71
I	CVC-**C**VC	bit-tit	4	3.60
I	CCVC-**X**CVC	špωk-pωk	4	3.59
I	CRVC-CR**V**C	šrϵt-šrɪt	3	3.58
I	CCVC-C**X**VC	škol-šol	4	3.54
I	CCVC-C**C**VC	špal-šval	4	3.53
I	CCVC-**C**CVC	tvϵš-kvϵš	4	3.51
I	CVCC-CV**X**C	lɔft-lɔt	4	3.45
I	CV^C-CV**R**C	noʌt-nolt	3	3.31
I	CRVC-C**X**VC	šrϵt-šϵt	2	3.30
I	CRVC-C**R**VC	šrϵt-šmϵt	3	3.28
I	CVC-CV**C**	bak-bat	4	3.49
I	CVCC-CV**C**C	šæps-šæks	4	3.48
II	CVRC-CV**X**C	hilt-hit	6	3.52
II	CV^C-C**V**^C	noʌt-niʌt	3	3.41
II	CVVC-C**VV**C	dait-dʌɪt	2	3.32
II	CCVC-**CX**VC	špωk-hωk	4	3.24
II	CVRC-C**V**RC	kort-kϵrt	6	3.19
II	CVCC-C**V**CC	vaks-vωks	4	3.11
II	CVCC-CV**XC**	mɔps-mɔt	4	3.10
II	C^VC-C**X**VC	dʌɪd-did	4	3.08
II	CVVC-C**X**VC	dait-dit	2	3.07
II	CVVC-CV**X**C	dait-dat	3	3.04
II	CVCC-C**VC**C	šæks-šωps	4	3.02
II	CVC-C**V**C	dat-dɪt	4	3.02
II	CV^C-CV**X**C	feʌt-fet	3	2.98
II	C^VC-C**X**VC	dʌɪd-dɪd	4	2.95
II	CVVC-CV**V**C	dait-daut	6	2.94
II	CVRC-CV**R**C	dϵηk-dϵrk	6	2.91
II	CCVC-CC**V**C	kvak-kvik	4	2.89
II	C^VC-C**VX**C	dʌɪd-dɔd	8	2.85
II	CVRC-C**VX**C	dϵηk-dak	6	2.62
II	CRVC-C**XV**C	šrϵt-šɪt	2	2.51
II	CCVC-C**CV**C	špɔt-švɪt	4	2.29

Changes in Cluster II were mainly to the nucleus, which in this group consisted either of a vowel, a diphthong, or a vowel plus post-vocalic resonant. As these means were lower than those in Cluster I, it appears that pairs of words with a change to the nucleus were viewed to be more dissimilar than those with changes to onsets and codas. Changes to more than one segment were all combined into Cluster II, which means that a change to two segments generally received lower similarity judgements than changes to a single segment. So, it appears that it is not only the quality of the change (nucleus versus onset or coda) but also the quantity of the change (one versus two segments) that affected subjects' judgements (cf. Derwing & Nearey, 1986).

3.2. Predicted Similarity Indices. The results of the cluster analysis suggested that subjects were using different criteria for their judgements of pairs. A change in the nucleus resulted in a lower similarity judgement than a change in the onset or coda. Prevocalic resonants were treated as part of the onset such that a change to a resonant in prevocalic position resulted in higher similarity judgements than a change to those in postvocalic position. A change to two phones lowered subjects judgements much more than a change to a single consonant or vowel.

Incorporating the results of the cluster analysis and using a metric similar to that discussed in Derwing & Wiebe (1994), eight different predicted-similarity indices (PSI) were calculated for each word-pair. The eight PSIs were based on varying syllable models which gave different weights to the nucleus in proportion to the onset and coda. A simple regression revealed that all of the PSIs had a positive correlation with the mean similarity judgements but only one reached significance. PSI-1, the only PSI to reach significance, assigned the greatest weighting to a change in the nucleus (of the type V, VV, VR) and less weighting to changes either in the onset (including CR) or coda.

A subsequent pairwise partial correlation analysis revealed relatively high correlation coefficients for two PSIs (PSI-1 and PSI-2) when they were paired with each other and the means. The PSI-2 places a slightly higher weighting on an onset containing a prevocalic resonant than one without resonants, but more weight to the nucleus than either to the onset or the coda. An examination of the Studentized residuals suggested that the best fit for the data would be a prediction that encompassed both of these PSIs. It would appear that predictions based on a model of a syllable with a complex nucleus would provide the best fit for the data. This complex nucleus would consist of a nucleus containing a vowel (or diphthong) plus a resonant and an onset containing a resonant, where the resonants and vowels were weighted more heavily than non-resonant consonants or consonant clusters.

Using the PSI method is not entirely workable for stimuli of this type. The proposal to weight the complex nucleus more heavily does yield slightly better results, but exactly how much weight the vowel should receive is not clear. However, Dow's (1987) suggestion that an *onset + complex nucleus + coda* model of the syllable in English was a better predictor of similarity judgements was borne out by the results in PD, because PSI-1 incorporates this type of syllable.

3.3. Linear Regression Analysis. When a series of linear regression analyses (see Derwing & Nearey, 1995 for an overview) was run on these data, a clearer picture of the weighting of the various subsyllabic units emerged. The greatest contribution to the subjects' SSJs was made by a complex nucleus including postvocalic resonants (coefficient of 0.96); followed by an onset including any prevocalic resonants (coeff. 0.69); then a coda containing consonants other than resonants (coeff. 0.49) as indicated by the relative sizes of the coefficients (all significant p< .01). Interestingly the coefficients for the rime and for the individual segments were very small (all > 0.10) and none of them reached significance. This result corroborates the other analyses in that it 1) confirms the cluster and PSI analyses, 2) indicates that PD speakers weigh the nucleus more heavily in SSJs, and 3) supports a model of the syllable where all resonants are part of the onset in prevocalic position but are part of the nucleus in postvocalic position.

3.4. Interactions of Word and Match Types. An analysis of variance using two within-subjects variables and a 3-by-4 design was conducted to test the judged similarity of the various diphthong types, VV (I), VΛ(II), ΛV (III), with a complex nucleus containing a postvocalic resonant (VR, word type IV). The variables were three match types (M1, M2 and M3) and four word types (I, II, III, IV). Please refer to Table 4 (below and on the following page) for the different word and match types

A significant Match-by-Word (MW) effect was observed for changes in the postvowel position (F (6) = 9.53, *p* < .0001). A second, similar analysis of variance was run using word types I, II, III and V (RV), again with significant results in the prevowel position (F (6) = 8.72, *p* < .0001). Thus, it appears that word type interacting with match type affects subjects' judgements. An exploration of simple effects revealed that while there was no MW effect for word type I, there was for the other four types. (See Table 5 on the following page).

Table 4. Word-Pairs and Match Types

Match Types (M)	**Word Types (W)**					
	I CVVC		**II CVΛC**		**III CΛVC**	
M1	CV**V** C	raut-rait	CV**R**C	feʌt-felt	CΛ**V**C	fʌɪt-fʌɔt
M2	CV**X** C	raut-rat	CV**X**C	feʌt-fet	C**X**VC	fʌɪt-fɪt
M3	C**XV** C	raut-rot	C**VX**C	feʌt-fut	C**X**C	fʌɪt-fɪt

Match Types (M)	**Word Types (W)**			
	IV CVRC		**V CRVC**	
M1	CVRC	falt-fart	CRVC	šrɛt-šmɛt
M2	CVXC	falt-fat	CXVC	šrɛt-šɛt
M3	CVXC	falt-fet	CXVC	šrɛt-šɪt

Table 5. Word/Match Effects in Post- and Pre-Vowel Position

WM Effects	F-ratio	df	p
I (raµ̯t)	0.066	2	.936
II (feʌt)	6.71	2	.002
III (fʌit)	12.72	2	.0001
IV (falt)	30.12	2	.0001
V (šrɛt)	36.39	2	.0001

In Figures 1 and 2 below it appears that the lowest similarity ratings occur when word types IV and V have a match type M3. That is to say, subjects judged word-pairs where a vowel plus either a pre- or post-vocalic resonant (e.g., /šrɛt/ and /falt/) is substituted with a single vowel (/šɪt/ and /fet/) to be less similar than when this type of substitution involved any type of diphthong (e.g., /raut-rot/). On the other hand subjects judged pairs in which a substitution or deletion to a prevocalic resonant occurs (Type V: M1 /šrɛt-šmɛt/ and M2 /šrɛt-šɛt/), to be more similar than pairs where there was either a substitution or deletion in a diphthong (Type I: M1 /raut-rait/ or M2 /raut-rat/) or in a postvocalic resonant (Type IV: M1 /falt-fart/ or M2 /falt-fat/). Again it appears that a change in the onset has less effect on lowering subjects' judgements than a change to the nucleus does.

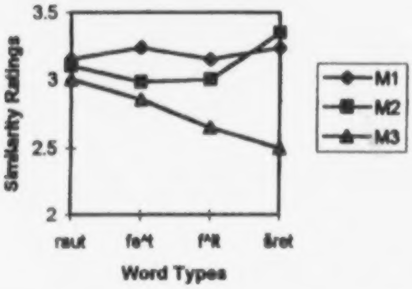

Figure 1: Word/Match Effect in
Post-Vowel Position

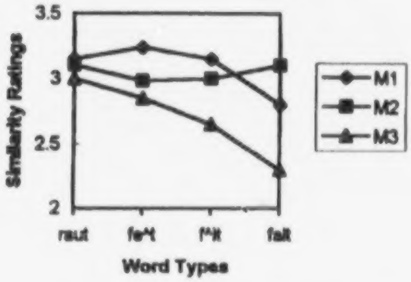

Figure 2.: Word/Match Effect in
Pre-Vowel Position

An analysis of variance was run using two within-subject variables (word type and match type) and one between-subject variable (ability to read HG). Only a Read HG by M interaction reached significance (F (3) = 3.18, p < .01). The results of an exploration of simple effects can be seen in Table 6 and Figure 3 below.

Table 6. Match Type and Ability to Read High German Interactions

Match Effects	F-ratio	df	p
No HG	3.90	2	.023
Read HG	2.82	2	.064

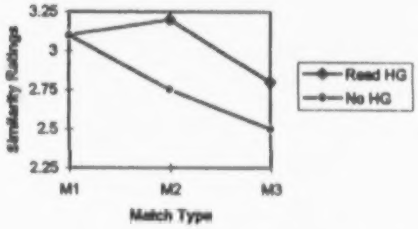

Figure 3. Interactions of Match Type and Ability to Read High German

It would appear from Figure 3 that those subjects who do not know how to read HG (the No HG group) judged a substitution (e.g., /feʌt-felt/) or deletion (/feʌt-fet/)

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to part of the nucleus to be more similar than those in which there was a change in the entire nucleus (/feʌt-fut/). This would indicate that those who are not familiar with reading German tend to treat a complex nucleus as a unit, and lends further support to the psychological reality of subsyllabic units.

4. Summary and Discussion

The similarity judgement experiment in which 57 native speakers of PD judged 180 word-pairs of 35 different types yielded some interesting results. The cluster analysis gave insights into which word-pairs were being treated in a similar manner and which were not. With the single-linkage hierarchical clustering method, two major clusters were identified: Cluster I, which could be called the 'onset-coda cluster', as most of the word-pairs in this major cluster had changes to the onset or coda; and Cluster II, the 'nucleus cluster', as there were changes in the nucleus for the majority of word-pairs.

Cluster II had lower average responses than Cluster I, which means that a change in the nucleus generally received a lower similarity judgement than a change to either the onset or coda. Thus, subjects felt that changing the nucleus made the pairs more dissimilar. Although the quality of the vowel change, while controlled for, was not tested in this experiment (see Derwing et al., 1988), this is an area where future research might yield some interesting results. The pairs subjects deemed most similar (i.e., they received the highest means) were those pairs in which there was a change to the second consonant of a consonant cluster. The pairs judged to be least similar overall were those in which there was a simultaneous change to the vowel and another consonant. Further, any change to two consonants rather than one had the effect of lowering subjects' judgements. The results of the word/match ANOVAs corroborated the results of the cluster analysis, the linear regression analysis, and the PSI analysis. It was also found that part of the variation in judgements was due to subjects' ability to read HG.

The cluster analysis provided insights into the data and served as a guide in the formulation of the predicted similarity indices or PSIs. Based on earlier methods of predicting similarity judgements, the PSIs used diverse models of the syllable in which subsyllabic units were given various weights. The best predictor of subjects' judgements was a syllable model consisting of an onset containing any prevocalic consonants including resonants; a nucleus containing vowels, diphthongs and postvocalic resonants; and a coda with postvocalic non-resonant consonants. For the purposes of comparison with subjects' judgements, the onset and coda in this model were assigned the least weight, and the nucleus the most weight, thereby assuring that any change to the nucleus would have the most effect and changes to the rime would have more effect than changes to the coda. Although this model had the only significant correlation with the means, an examination of the residuals suggested the incorporation of another model. This model gives the onset less weight than the coda and would provide the best fit for the data, unless the onset has a prevocalic resonant, in which case the onset and coda receive equal weight. Again, the linear regression analysis corroborated this model of the syllable in which there is a more heavily weighted, complex nucleus.

The SSJ experiment verified results of previous segment count and deletion-recognition tasks (see Wiebe & Derwing 1992, 1994). In both previous tasks subjects found it more difficult to separate postvocalic than prevocalic resonants from the vowel. The conclusions from these two tasks were that 1) subjects were treating vowel plus postvocalic resonants as a unit and therefore, 2) postvocalic resonants must form part of the nucleus. Similarly, subjects treated postvocalic resonants like vowels and diphthongs in the present SSJ experiment which suggests, once again, that postvocalic resonants form part of the nucleus.

The results from the SSJ task, coupled with the results from the earlier deletion-recognition and segmentation tasks indicate that diphthongs form fairly cohesive units. In the segment count task diphthongs were most often counted as one unit, but there was a tendency for some subjects to separate ingliding diphthongs (VΛ). Although they were unsure about ingliding diphthongs, in the coda deletion-recognition task subjects preferred not to delete the second half of the diphthong, thereby keeping the diphthong intact. In the SSJ experiment, subjects treated single vowels and diphthongs in a similar manner, which means that diphthongs were a unit. The one anomaly noted was that subjects judged word-pairs in which there was change from an ingliding diphthong to a vowel plus resonants (VΛ-VR) to be much more similar than any other change to a diphthong. This suggests that ingliding diphthongs may be very like vowels plus postvocalic resonants. This hierarchy of diphthongs, in which ingliding diphthongs behave more like vowels plus postvocalic resonants, was noted in this SSJ task and in the deletion-recognition and segmentation tasks (Wiebe & Derwing 1992, 1994).

Thus, if a hierarchical model of the syllable is adopted, the model should consist of an onset, including any pre-vocalic resonants; a complex nucleus, including any postvocalic resonants; and a coda. If such a model is adopted, it should also allow for fluctuations across boundaries, so that the distinct demarcations between subsyllabic units disappear. It is clear, however, that a scalar-bonding model of the syllable (see Wiebe & Derwing 1992) provides the most satisfactory explanation of the results, given the present validation of the earlier deletion-recognition and segment count tasks by the present SSJ task.

NOTES

[1] There are earlier investigations where the existence of sharp boundaries has also been questioned, such as in the work on stratificational theory by Lockwood (1975).

[2] The three types of diphthongs were tested as they are phonemically distinct (Wiebe, 1994).

[3] In the chart C=obstruent consonants, R=resonant consonants, V=vowel, VΛ=ingliding diphthong, ΛV=outgliding diphthong, VV=long diphthong, underlined

bold type=sound changed, X=sound deleted, ( )=No. of items.

[4] The words in brackets are used to designate word types in the figures below.

REFERENCES

Derwing, Bruce L., Maureen L. Dow, & Terrance M. Nearey. 1988. "Experimenting with Syllable Structure." In: *ESCOL '88,* ed. J. Powers and K. de Jong, 83-94. Columbus, OH: Ohio State University.

— & Terrance M. Nearey. 1986. "Experimental Phonology at the University of Alberta." In *Experimental Phonology,* ed. J.J. Ohala & J.J. Jaeger, 187-209. Orlando, FL: Academic Press.

— & Terrance M. Nearey 1995. "On the Status of the Segment in Four Typologically Diverse Languages: Results from Global Sound Similarity Judgements." *Proceedings of the XIIIth International Congress of Phonetic Sciences, Vol. 2,* pp. 598-601. Stockholm: KTH and Stockholm University.

— & Grace E. Wiebe. 1994. "Syllable, Mora or Segment? Evidence from Global Sound Similarity Judgements in Japanese." In *Proceedings of the 1994 Annual Conference of the Canadian Linguistic Association*, ed. P. Koskinen., 155-164. Toronto: University of Toronto Press.

Dow, Maureen L. 1987. *The Psychological Reality of Sub-syllabic Units.* Unpublished PhD. Thesis, University of Alberta.

Lenel, J.C. & J.H. Cantor. 1981. "Rhyme Recognition and Phonemic Perception in Young Children." *Journal of Psycholinguistic Research, 10*(1), 57-67.

Lockwood, David G. 1975. "Alternative to Matrix Models in Phonetics and Phonology." *LACUS Forum* 2, 141-153.

Treiman, Rebecca, & A.M. Breaux. 1982. "Common Phoneme and Overall Similarity Relations among Spoken Syllables: Their Use by Children and Adults." *Journal of Psycholinguistic Research, 11* (6), 569-598.

Vitz, P.C. & B.S. Winkler. 1973. "Predicting the Judged 'Similarity of Sound' of English Words." *Verbal Learning and Verbal Behavior, 12,* 373-388.

Wiebe, Grace E., & Bruce L. Derwing. 1992. "The Syllabic Status of Postvocalic Resonants in an Unwritten Low German Dialect." In *ICSLP 1992, Vol. 1*, ed. J.J. Ohala, T.M. Nearey, B.L. Derwing, M.M. Hodge, and G.E. Wiebe, 293-296.

— & Bruce L. Derwing 1994. "Rime Embeddedness in an Unwritten Language." In: *Proceedings of the 23rd WECOL*, ed. S. Hargus, G.R. McMenamin & V. Samiian, 490-502. Fresno, CA: CSU Fresno, Department of Linguistics.

Van der Hulst, Harry & Norval Smith, (eds.) 1982. *The Structure of Phonological Representations (Part II)*. Dordrecht: Foris.

III

SYNTAX

THE DUAL UNSELECTIVITY OF ADVERBIAL-QUANTIFIERS: THE CASE OF BELLA COOLA[1]

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1. Introduction

We claim that A(dverbial)-quantifiers – verbal markers of quantification – manifest two distinct types of unselectivity or ambiguity – scope ambiguity and semantic ambiguity. Scope ambiguity is an ambiguity in a morpheme's referential connections and thus in which component of the sentence it quantifies. Semantic ambiguity is an ambiguity with respect to the particular quantificational meaning which the morpheme realizes. The first type of ambiguity has been widely discussed in the literature (*e.g.* Jelinek and Demers 1994, Jelinek 1995, Evans 1995, Partee 1995, Demirdache *et al.* 1994, Nishigauchi 1990); the second type of ambiguity has long been recognized as a property of verbal modifiers in general, but has never been discussed specifically as a property of A-quantifiers.

In this paper we analyze the semantic unselectivity/ambiguity of A-quantifiers with reference to the Bella Coola "distributive" prefix *ƛx*. This prefix is a typologically extreme example of semantic unselectivity because it expresses nearly all the potential meanings of quantification.

In our discussion of the ambiguity of A-quantifiers, we will begin by addressing two background issues in the area of quantification: 1) the difference between D- and A-quantifiers as mechanisms of encoding quantification in natural languages and 2) the classification of the semantic types of quantificational notions.

2. D- and A-quantifiers and the problem of scope

In the taxonomy of quantifiers put forward in Partee et al. (1987) and Bach et al. (1995), two types of quantificational markers are distinguished—noun-adjacent and verb-adjacent. Markers which appear associated with a noun (via, for example, affixation or reduplication) or in a Noun Phrase (e.g. determiners) constitute a class called D(eterminer)-Quantifiers. Markers which appear on the verb (for instance, as affixation or root-changes) or are represented by elements which modify the verb (adverbs, auxiliaries, clitics) constitute the class of A(dverbial)-quantifiers.

These two types of markers differ from one another in their scopal properties. D-quantifiers are normally scope-selective: they always refer to the particular noun phrase that they are attached to, so it is always evident which of the arguments in the sentence is quantified. Thus, in *Four students came into the classroom* it is clear that the subject NP, and only the subject NP, is being quantified. In *Every student read all the articles* there are two D-quantifiers (*every* and *all*), each quantifying its own argument, so again there is no problem in identifying their respective scopes.

Unlike D-quantifiers, A-quantifiers are often not straightforwardly selective in scope. Typological data show that A-quantifiers vary greatly in this respect from language to language: they may be highly selective (like D-quantifiers), highly indeterminate, or even fully unselective.

For example, the verbal affix *djarrk* 'all, altogether' in the Australian language Mayali (Evans 1995) is highly selective: it can refer only to the sentence subject, to which it gives the quantificational notion of collectivity:[2]

(1) Garri-djarrk-dulubom   duruk
we-together-shoot:PP   dog
'We all shot the dog(s)'
*'We shot all the dogs'
(Evans 1995)

Here *djarrk* cannot refer to any other argument, so the interpretation *'We shot all the dogs', where the object is quantified, is impossible, despite the fact that it is logically possible to interpret the object collectively.

In contrast, other languages demonstrate partial or full unselectivity in the scope of A-quantifiers. The Japanese affix *-mo* 'each', for example, may be used as a general quantifier for any NP in the sentence, or for all at once (Nishigauchi 1990). In Straits Salish, the particle *mək̓ʷ* 'all/again/completely' (Jelinek and Demers 1994) can quantify any component of the construction—any of the arguments, or the verb itself. Thus, a sentence like

(2) mək̓ʷ   w̓   na-t   tsə   sčenxʷ
all =we   LINK   eat-TRANS   DET   fish
(Jelinek and Demers 1994)

can be interpreted in four different ways:

a. 'We ate all the fish' – where the A-quantifier has scope over the object;
b. 'We all ate fish' – where it has scope over the subject;
c. 'We all ate all the fish' – where it has scope over both subject and object;
d. 'We completely ate the fish up' – where it has scope over the verb.

In the case of (d), *mək̓ʷ* lends the notion of completion or completitive aspect to the sentence, thereby quantifying the event itself rather than the event-participants. The Slavic distributive prefix *ras/z-* (Russian *rasstavit'* 'to put each object separately in a different place', *razbežat'sja* 'to run off in different directions'), on the other hand, simultaneously marks multiplicity of locations and multiplicity of subjects or objects and thus combines quantification of participants and quantification of events.

This variation in the quantificational properties of A-quantifiers means that there is no single component of the sentence to which they must be bound. They can refer to any or all of the arguments (NPs) in the sentence, or to the verb (the event) itself. Consequently, the scopal ambiguity of A-quantifiers may be of one (or both) of two types—ambiguity with respect to which of the event participants is being quantified (scopal ambiguity) or ambiguity with respect to which of the semantic components of the verb is being quantified (semantic ambiguity).

3. Semantic types of quantification

In order to consider the issue of semantic ambiguity, it is first necessary to construct a framework within which to deal with the various types of quantificational meanings that may be at issue. Quantification as a type of meaning is an 'umbrella' notion for a certain semantic field. This field is not a homogeneous entity, but a variety of semantically distinct notions which can be classified and presented as a semantic structure.

In general, contemporary classifications distinguish first between quantification of entities and quantification of events.[3] Entities may be quantified in three ways (Xolodovič 1979, Mel'čuk 1979, Hirtle 1982):

- as discretely countable objects ('discrete plurality'), as in *two sheep*
- as a homogeneous mass ('mass plurality'), *e.g. sand, soldiery*
- as a singular collection of discrete objects ('heterogeneous plurality'), as in *The committee argued viciously among themselves.*

Event quantification involves additional parameters and consequently is more complicated.[4] In addition to showing the same three-way distinction of pluralities shown by entities (discrete, homogeneous, heterogeneous—cf. Dolinina 1990), event plurality may also distinguish two types of repetition: 1) the multiple performance (iteration) of an action by a single actor or the multiple occurrence of the same situation with the same set of participants, and 2) the repetition of the same act with different participants or by the same participant(s) at multiple locations. Thus, there are theoretically six types of event plurality:

1) Repetition of an act/situation involving the same participants. This has the following sub-meanings:

   a) 'Iterativity' or discrete repetition: *he visited Toronto twice/many times/ regularly*, etc.;
   b) 'Multiplicativity' or homogeneous repetition, which refers to cases when an event consists of a succession of microacts, as in *to twinkle, to rattle* (*cf.* *one twink/*one rattle), or Aleut *tuga-ku-u* 'he hits him' > *tuga-mixta-ku-u* 'he is beating him'. (Golovko 1989); and

  c) heterogeneous repetition (no special term), which refers to a semantic shift from a group of different actions to generalized presentation of them as a new notion, as in *to supervise, consult*, etc.

2) Repetition of an act by different participants or at different locations:[5]

  a) 'Distributivity' or repetition of discrete acts by/towards each member of a group ('Actant Distributivity') or at each of several locations ('Locative Distributivity')—e.g. *each took a turn* (Subject Distributivity); Russian *razdali knigi* 'they gave out the books (one by one)' (Object Distributivity); Russian *pticy razletelis'* 'the birds (as a group) flew off (each in a different direction)' (Locative Distributivity);
  b) 'Collectivity' or homogeneous repetition of an act by a group as a whole, presented either as a single act carried out by a strictly delimited group—*The team scored a goal*—or presented as a single process involving several participants each performing their own micro-action, as in Upper Chehalis *čə́m-* '[plural subjects] wail' (cf. *šəʔu-* '[singular subject] cries, wails') (Kinkade 1991: 36); and
  c) heterogeneous repetition by a group of separate actions conceived of as a single generalized act (no special term), as Shuswap *cymyem* 'several parties are camped' (cf. *cyem* 'they are sitting') (Kuipers 1974: 268).

Aside from distinguishing types of plurality and types of repetition, event quantification also covers the semantic area of "degree" of an action/state—that is, its measure of intensity in time or in manner. This parameter characterizes the action or event in terms of how it exceeds or falls short in comparison to the "norm", as in Russian *igrat'* 'to play'—*poigrat'* 'to play a little'—*pereigrat'sja* 'to play too much'.

Thus, the area of event quantification is semantically diverse and is a much more complicated phenomenon than entity plurality. In terms of the grammatical strategies for marking event and entity plurality, either can potentially be expressed by either D- or A-quantifiers—most commonly, however, entity plurality is marked by D-quantifiers and plurality of an act carried out by a single actor is marked by A-quantifiers. Plurality of an act carried out by a number of actors (Distributivity and Collectivity) is commonly marked by either type of quantifier.

As a rule, D- and A-quantifiers also differ from one another in their potential for ambiguity or unselectivity. D-quantifiers have a narrower range of possible meanings, expressing predominantly entity quantification and Distributivity/Collectivity, while A-quantifiers can potentially denote a wide variety of meanings associated with different types of entity- and event-plurality. In theory, one such quantifier could have all the possible sub-meanings of plurality, though in practice languages tend to have more than a single A-quantifier, each of them covering a limited set of meanings. In very rare cases, semantic ambiguity is carried to the extreme and a single quantifier is used to cover practically the entire semantic field of quantification. Such is the case of the Bella Coola 'distributive' prefix *ʔix-*.

4. Quantificational meanings of the Bella Coola prefix ƛx-

The Bella Coola prefix *ƛx-* is glossed most frequently as 'distributive', but in reality its quantification-related semantics is much wider. *ƛx-* is one of two A-quantifiers found in Bella Coola, the second being reduplication. As a rule, reduplication marks the Continuative, while the prefix is used for all other quantificational meanings marked in the language. This makes *ƛx-* a typologically interesting case as its meaning can be extended to cover virtually all the major types of event-plurality – Distributive, Collective, Iterative, Multiplicative, and Intensive.[6]

4.1. Repetition of an act/situation involving the same participants. The *ƛx-* prefix can mark all three types of these meanings:

a) Iterativity or discrete repetition—the repetition of discrete single actions presented as a set or series of actions, as in:

(3)	cut	cuct	ʔix- cuct
	say	(rdp)say	[dist]-(rdp)say
	'say'	'is saying'	'keep repeating'
			(Davis and Saunders 1980: 270)

b) Multiplicativity or homogeneous repetition—a shift from a singular microact, or a punctual action (which represents a semelfactive meaning) to a process, consisting in a repetition of these microacts, as in:

(4) a.	q̇m-is	ʔix-q̇m-s
	stop-it/he	[dist]-step-he
	'he steps on it'	'he walks'
		(Davis and Saunders 1980: 127, line 7)

b.	mus-is	mus-a-s	ʔix-mus-a-s
	feel-it/he	feel-[ap]-he	[dist]-feel-[ap]-he
	'he feels it'	'he feels for it'	'he feels about (gropes) for it'
		(based on Nater 1990: 31)	

c) heterogeneous repetition—the semantic shift from a group of different actions to a generalized presentation of them as a new notion, as in:

(5)	ʔakʷa	ʔakʷakʷ	ʔix-ʔakʷakʷ
	buy	(rdp)buy	[dist]-(rdp)buy
	'buy'	'be buying'	'be shopping'
		(Nater 1990: 31)	

4.2. Repetition of an act by different participants or at different locations. *ʔix-* can mark two of the three types of such meanings:

a) Distributivity – the repetition of discrete acts by/towards each member of a group or at various locations. *ʔix-* can mark both subtypes of Distributivity:

i) Actant Distributivity, which can quantify either argument—giving multiple subjects (Subject Distributivity),

(6)	ʔq́χ	ʔq́ʔχ-cant	ʔix-uq́χ-cant
	call	call-me/they	[dist]-call-me/they
	'call someone'	'they call me'	'each calls to me'
		(Davis and Saunders 1980: 92, line 52)	

or multiple objects (Object Distributivity),

(7)	ʔay-ak	ʔix-ʔay-ak
	do-hand	[dist]-do-hand
	'give'	'distribute (presents)'
		(Nater 1990: 31)

ii Locative Distributivity, which refers to a multiplicity of locations, in Bella Coola indicating aimlessness or an indefinite number of directions of movement (and so bearing a resemblance to homogeneous repetition of an action):

(8)	þiiχla	þiiχla-naw	ʔix- þiiχla-naw
	adrift	adrift-they	[dist]-adrift-they
	'be adrift'	'they are adrift'	'they are floating around'
			(Nater 1990: 31)

b) Collectivity—the homogeneous repetition of an act by a group as a whole:

(2) a.	ʔlq́-is	ʔlq́-m-s	ʔix-ʔlq́-m-aw
	think-it/he	think-[md]-s	[dist]-think-[md]-they
	'he thinks about it'	'he thinks'	'they thought over'
		(Davis and Saunders 1980: 20, line 158)	

So far, the data have not yielded instances of *ʔix-* used to express heterogeneous repetition by an act by different participants.

4.3. Intensivity. As noted above, event-quantification can also cover the semantic area of degree or intensity of an action, either in manner,

(10) a. ʔnƛ ʔnλ-s ʔix-nƛ-s
dark dark-it [dist]-dark-it
'dark, night' 'it is dark/night' 'it is very dark'
(Nater 1990: 31)

b. pq̓ʷ pq̓ʷ-m ʔix- pq̓wm
[dist]-snow-[md] 'snow' 'to snow' 'blizzard'
(Davis and Saunders 1980: 61, line 20)

or time:

(11) ʔaxʷs ʔaxʷ snixim … ʔix-ʔaxʷs-s
yell hear-[pass] [dist]-yell-she
'to yell' 'It was heard … that she was shouting'
(adapted from Davis and Saunders 1980: 96, line 13)

It is in this last sense that the generalized event-quantificational meaning of *ʔix-*, 'a lot, a great deal, all over' most closely approximates the continuative meaning expressed by reduplication, as in

(12) ta-ƛmsta-tχ s-tixtiiχ-m-s
D-person-D np-(rdp)pound-[md]-he
'a person pounding [poles]'
(Davis and Saunders 1980: 96, line 10)

5. Determination of the context-specific quantificational meanings of ʔix-

An analysis of the contexts in which *ʔix-* is found shows that the interpretation of a particular meaning in a particular construction can be predicted (or at least explained), at least to the extent that its meaning seems to be "softly" determined by certain factors—the lexical semantics of the predicate (its denotative meaning, its argument frame, the inner aspect of the predicate), discourse considerations, the use of clarifying adverbs, etc.

Of these factors, the lexical semantics of the predicate is the strongest predictor. Thus, it is possible to anticipate which meanings can be realized when *ʔix-* combines with certain types of predicates, although such predictions are not very reliable. In many cases, predicates contain not one, but several semantic components, each of which could serve as the target of quantification. The following two semantic components, however, seem to be relevant to the actualization of a particular meaning:

a) An argument frame with a strong focus on a certain argument can trigger

Distributivity, as ‘give – distribute’, ‘think – think about many things’, ‘call – each calls’. Similarly, a situation with a specific locative component where the location includes a lot of individualized points triggers a Dispersive meaning ‘happening at every particular point’, as in ‘be caught – get more and more tangled (in a net)’;

b) The denotative semantics of the verb strongly influence the meaning of the *ƛx*-marked form:

- predicates denoting concepts with a strong “scale” component often trigger the meaning of Intensivity, as in ‘dark – very dark’, ‘snow’ – ‘blizzard’, ‘to think – to think intensively’;
- predicates of motion give a generalized reading of ‘all over’ or ‘in multiple directions’ (i.e. Locative Distributivity). Some verbs of motion trigger the meaning of aimless movement ‘drift—drift around’, while others with stronger telicity or directionality shift the focus to the distance covered and the fact that the motion has taken place over an extended or distributed region of space—e.g. ‘swim—swim to the shore’;
- the inner aspect of the predicate also triggers certain readings. In semantically punctual verbs, the prefix marks the shift from semelfactive to multiplicative, as in ‘sting—feel pain’, ‘step—walk’. Verbs which have accomplishment-like aspectuality can trigger the habitual subtype of Iterativity—‘call—used to call’.[7]

Given the bipartite division proposed above, the prefix *ƛx-* seems to display two distinct types of unselectivity: a semantic one (it marks a variety of event-quantificational meanings) and a scopal one (it can quantify both arguments and locations). It is this first type of unselectivity of A-quantifiers that is most widely recognized and has been the principle focus of attention in the literature to date, whereas the second type of unselectivity has not been previously discussed at any length as a property associated with A-quantifiers.

6. Unselectivity of A-quantifiers versus other types of grammatical ambiguity

The semantic unselectivity of grammatical markers is not a phenomenon unique to quantification; it constitutes part of a wider linguistic problem—the multifunctionality of grammatical markers in general. It is common knowledge that a given morpheme, especially a morpheme associated with verbs, may be used to encode not just one, but several grammatical categories. For example, the so-called “reflexive” markers in many languages mark not only reflexivity *per se*, but also a number of other categories related to the detransitivization of the verb. The Russian reflexive *-sja*, for example, marks the Passive, Decausative, Reciprocal, etc., and is also involved in marking some other non-categorial semantic and syntactic shifts such as the incorporation of objects.[8] The English “passive form” (*to be* + past participle) regularly marks both the Passive and the Resultative, and in certain cases may mark Decausatives (Dolinina 1989). Conversely, the same category can be marked by a set of distinctive markers: reflexivity in English, for example, can be expressed either by *self*-marking or by zero-marking.

This situation does not mean that there are no restrictions on the selection of the form for marking a certain category, or that any construction with a certain form will be ambiguous. Typological (and other) research on such matters shows that grammatical ambiguity of form is to a large extent resolved by context—either at the level of the verbal lexeme itself, at the level of a syntactic construction formed by the verb (the combination of the verb with certain arguments or with certain adverbs), or in the wider context of the discourse-properties of the sentence.

In cases where the specific meaning of the marker can be definitively resolved at the level of the verb form alone, or within the immediate verbal construction, one can claim that this is a case of partial rather than complete ambiguity. In such cases, it becomes possible to identify certain regular environments in which this or that meaning of the "ambiguous" marker will be actualized. Generally, the selection of the resulting meaning is determined by the multivariate lexical semantics of the verb—its denotative meaning, argument frame, inner aspectuality, telicity/atelicity, reversibility/irreversibility of the state/action, etc. (cf. Nedjalkov and Jaxontov 1988, Dolinina 1989), but this resolution often remains only partial. Consequently, ambiguity—both of grammatical markers in general and A-quantifiers in particular—can be qualified in terms of the degree of unselectivity a given morpheme displays. This gives us a new and important metric for the description and classification quantifiers, which, as we have seen, range from highly selective (monosemous and absolutely unambiguous) to unselective (scope- or semantically-ambiguous) and highly ambiguous. At the extreme end of this continuum we find morphemes like *ƛix-*, which is semantically highly unselective and seems to serve as a sort of generalized quantificational marker whose specific meanings are highly context-dependent and – in terms of event- quantification – determined by the most abstract semantic properties of the verb with which they combine.

NOTES

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2. The abbreviations used in the examples are as follows: ap = anti-passive; cont = continuative; D = deictic; DET = determiner; dist = distributive; md = middle; PP = past participle; refl = reflexive; rdp = reduplication; TRANS = transitivizer.

3. A division first proposed in Jespersen 1924.

4. Previous classifications that have been put forward include Dressler (1968), Khrakovskij (1989), and Dolinina (1990).

5. Usually all of these types of event quantification are classified either as 'distributive'—if the individuals act separately—or as 'collective', if they act as a group, and traditionally these are regarded as separate phenomena. Here, however, distributivity *per se* is taken to represent discrete repetition of an act by/towards multiple participants or at separate locations and collectivity is interpreted as homogeneous distributivity (see also Dolinina, in press).

6. There are boundary cases, however, where *ƛx-* marks meanings closely related to the continuative, as in (11), and reduplication allows iterative (frequentative) or semelfactive interpretations which combine with continuativity.

7. In general, it seems that aspectually neutral, telic, and discrete actions may trigger iterative meanings, whereas atelic discrete actions trigger Intensivity.

8. The grammatical ambiguity of reflexive forms is a typologically widespread phenomenon, as shown in Geniushene (1987).

REFERENCES

Bach, E., E. Jelinek, A. Kratzer, and B. Partee (Eds.) 1995. *Quantification in Natural Languages*. Dordrecht: Kluwer.

Geniushene, E. 1987. *The Typology of Reflexives.* Berlin: Mouton.

Golovko, E.V. 1989. "Marking of Event-Plurality in Aleut." in Khrakovskij (Ed.), 1989, 54-63.

Davis, P.W., and R. Saunders. 1980. *Bella Coola Texts.* Victoria: British Columbia Provincial Museum.

— 1989. "Language and Intelligence: The Semantic Unity of *-M-* in Bella Coola." *Lingua* 78, 113-58.

Demirdache, H., D. Gardiner, P. Jacobs, and L. Matthewson. 1994. "The Case for D-Quantification in Salish: 'All' in Sƛ̓áƛ̓imcets, Squamish and Secwepemctsin." in *Papers for the 29th International Conference on Salish and Neighbouring Languages*, 145 – 203. Pablo: Salish Kootenai College.

Demirdache, H., and L. Mathewson. 1997. "The Syntax and Semantics of Distributivity in Sƛ̓áƛ̓imcets (Lillooet Salish)." Paper Presented to the Second Workshop on Structure and Constituency in the Languages of the Americas. University of Manitoba, February 19-21, 1997.

Dolinina, I. 1989. *Syntax-Affecting Categories of the English Verb.* Leningrad: Nauka.

— 1990. "Verbal Plurality: Semantic Types." in *Typology and Grammar*, 141 – 51. Moscow: Nauka.

— (In Press). "Distributivity: More than Aspect."

Dressler, W. 1968. *Studien Zur Verbalen Pluralität*. Wien: Böhlau in Kommission.

Evans, N. 1995. "A-Quantification and Scope in Mayali." In: Bach *et Al.* (Eds.), 1995, 207-70.

Hirtle, W. 1982. *Number and Inner Space*. Québec: Presses De L'université Laval.

Jelinek, E. 1995. "Quantification in Straits Salish." In: Bach *et Al.* (Eds.), 1995, 487-540.

Jelinek, E., and R. Demers. 1994. "Predicates and Pronominal Arguments in Straits Salish." *Language* 70, 697-736.

Jespersen, O. 1963. *The Philosophy of Grammar*. London: Allen & Unwin.

Khrakovskij, V. (Ed.) 1989. *Tipologija Iterativnyx Konstrukcij*. Leningrad: Nauka.

Kinkade, M.D. 1991. *Upper Chehalis Dictionary. University of Montana Occasional Papers in Linguistics #7*. Missoula: University of Montana

Kuipers, A. 1974. *The Shuswap Language*. The Hague: Mouton.

Mel'čuk, I. 1979. "'Countability' Vs. 'Non-countability' and Lexicographic Description of Nouns in Russian." In: Paule Cline, William Hanks and Carol Hofbauer (Eds.), *Papers from the 15th Regional Meeting Chicago Linguistic Society*. Chicago: University of Chicago Press, 220-27.

Nater, H. 1984. *The Bella Coola Language*. Ottawa: National Museums of Canada.

— 1990. *A Concise Nuxalk-English Dictionary*. Hull: Canadian Museum of Civilization.

Nishigauchi, T. 1990. *Quantification in the Theory of Grammar*. Dordrecht: Kluwer.

Nedjalkov, V., and S. Jaxontov. 1988. "The Typology of Resutative Constructions." in Nedjalkov (Ed.), *Typology of Resultative Constructions*, 3 – 63. Amsterdam: John Benjamins.

Partee, B. 1995. "Quantificational Structures and Compositionality." In: Bach *et Al.*, 1995, 541-601.

Partee, B., E. Bach, and A. Kratzer. 1987. *Quantification: A Cross-linguistic Perspective*. Nsf Grant Proposal, University of Massachusetts, Amherst.

Xolodovič, A.a. 1979. *Problems of Grammatical Theory*. Leningrad: Nauka.

AN ERGATIVE-ABSOLUTIVE DISTINCTION IN THE HUNGARIAN VERBAL COMPLEX

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1. Introduction

Hungarian is a member of the Finno-Ugric family of languages. In many regards it differs radically from the surrounding Indo-European tongues. One of these fundamental differences is the presence in Hungarian of a dual conjugational system in the verbal complex—this system not only marks the person and number of the verb's subject (as is typical in Indo-European) but also marks the presence of definite direct objects through the use of a special conjugation. These two conjugations are known as the subjective and objective conjugations respectively. (They are also known as the *definite* and *indefinite* conjugations, but I will be using subjective and objective.)

Hungarian is primarily a nominative-accusative (NOM-ACC) language which displays a rigid distinction between subjects and objects of verbs. In no way do I dispute this fundamental feature of Hungarian. Instead it is my contention that Hungarian also shows secondary ergative marking and that this is manifest in the above mentioned dual conjugational system. In addition, certain features of the Hungarian verbal system can be better explained in a framework which distinguishes between ergative and absolutive arguments of verbs than in a traditional NOM-ACC framework.

The following paper will first present a brief theoretical overview of ergativity in language (Section 2). This will be followed by evidence that Hungarian does display limited ergative marking. Historical evidence, as well as analysis of certain verbal formations and dialect constructions will be given to support this view.

2. Ergativity

In languages of the world there are generally two great types of pronominal systems. The first of these is the nominative-accusative type which is characterized by one case used for the subject of verbs and one for the object of transitive verbs. Most Indo-European languages are NOM-ACC. The English pronominal system and the declensions of languages such as German and Russian reflect this distinction, as is shown in the examples given in (1) in English and Norwegian. NOM-ACC languages do not generally distinguish between subjects of transitive verbs and subjects of intransitive verbs. These are both marked as NOM.

(1) *I* (NOM) love *her* (ACC).
I (NOM) run quickly.
Jeg (NOM) elsker *deg* (ACC) 'I love you', vs.
Du (NOM) elsker *meg* (ACC) 'You love me', etc.

The ergative-absolutive (ERG-ABS) type pronominal system stands in contrast to the NOM-ACC distinction. In an ergative system there is one case, the unmarked absolutive case, used for both the subjects of intransitive verbs (including passives) *and* the objects of transitive verbs. The marked ergative case is used for the subjects of transitive verbs and, in many languages, as the possessive pronoun as well. The ergative pronoun is marked as [+agent] and stands in distinction with the absolutive which is unmarked for agent. The examples in (2) are from Choltí, a now-extinct Mayan language which shows the ERG-ABS distinction clearly:

(2) a.	čam *et*	die ABS.2.sing	'thou diest'
b.	*in*-çohben *et*	ERG.1.SING love ABS.2.sing	'I love thee'
c.	*in*-samaib	ERG.1.SING sandals	'my sandals'

(2)a shows the absolutive pronoun *et* functioning as the subject of the intransitive verb*čam* 'die', whereas in (2)b the same pronoun serves as the object of the transitive verb *čohben* 'love'. *In*, the ergative pronoun, serves as the subject of*čohben* and in (2)c it functions as the possessive pronoun with *samaib* 'sandals'.

It is extremely common for languages overtly of one type to covertly recognize the other type. A few examples from English will show this clearly. Roman Jakobson pointed out the first of these:

> "We say, *The farmer walked* and *The farmer killed the bear*. *The farmer* is the subject in both cases; in languages with a declension it is expressed as the nominative. In ergative languages… *the farmer* (in the first sentence) and *the bear* are expressed in the same case, and the nontransitive actions are identified with the passive. Here *the farmer*, who walked, and *the bear*, whom he killed, are in the unmarked case, and *the farmer*, who killed, is in the ergative (marked) case… we have the pair *examiner-examinee* and many other pairs of this type; but we also have *escapee*, *refugee*, and others. This association of the two groups, the farmer who walked (cf. *escapee*) and the bear that was killed (cf. *examinee*), into one category with the suffix *-ee* is a typically ergative product." (Jakobson 1990:322)

It has also been pointed out to me by John Robertson (personal communication) that in English verbal particles modify their verb with respect only to what would be their absolutive argument in an ERG-ABS language, as in example (3):

(3) a.	I go *out*	modifies subject of intransitive
b.	I was run *over*	modifies subject of passive
c.	I ran him *over*	modifies object of transitive

I have also observed that English past participles, when used as adjectives, modify only what would be used as their absolutive argument, as in (4):

(4) a *vanished* man	X (ABS) vanishes
the *wounded* fish	Y (ERG) wounds X (ABS)
the *dead* cow	X (ABS) dies

From these examples I think it is clear that English covertly recognizes the ERG-ABS distinction. In the following section I will demonstrate that Hungarian also recognizes this distinction but at an *overt* level.

3. Hungarian's Two Conjugations

The simplest description of the dual conjugations of Hungarian is that subjective conjugation is the unmarked conjugation and that the objective conjugation is used only in the presence of a definite third person object (such as a name or a noun marked with the definite article *a*, *az*) whether the object is expressly stated or unambiguously understood in the context. Verbs which take either first or second person objects or indefinite third person objects are used with the subjective conjugation. The endings of both conjugations consist of vowels (which vary harmonically according to the stem vowels of the verbal root) plus personal endings. The endings of both conjugations are presented in Table 1 and examples are given in (5).

Table 1. The subjective and objective conjugations in Hungarian

		Singular	Plural
1st	subj	*-ok, -ek, -ök*	*-unk, -ünk*
	obj	*-om, -em, -öm*	*-juk, -jük*
2nd	subj	*-sz, -ol, -el, -öl*	*-tok, -tek*
	obj	*-od, -ed, -öd*	*-jatok, -itek*

3rd	subj	*-Ø* (archaic *-on, -en, -ön*)	*-nak, -nek*
	obj	*-ja, -i* *-jak, -ik*	

(5) a.	subjective conjugation:	
	*lát**ok***	'I see, I cán see'
	*jöv**ok***	'I am coming'
	*tésztát szeret-**Ø***	'He likes pasta'
(5) b.	objective conjugation:	
	*lát**om***	'I see **it**'
	*szeret**i** a tésztát*	'He likes **the** pasta'

In the examples in (5) it can be seen that the objective endings, in addition to identifying the person of the subject also indicate the nature of the object. Traditional analysis of the endings usually stops with this. However, in the next section I will show how this system shows many similarities to the distinction between ergative and absolutive shown in ERG-ABS languages, even though the distinction does not show up in the pronominal system as such. This marking is limited to the verbal endings.

4. Parallels with ERG-ABS*systems*

There are a number of similarities between the use of the objective conjugation in Hungarian and ergative marking in other languages. In this section I will focus on six of these similarities: a., the objective conjugation as an agent marker; b., the historical connection between the possessive endings and the objective conjugation in Hungarian; c., a theoretical distinction between so-called single-argument and double-argument predicates in Hungarian, a distinction typical of ERG-ABS systems; d., the *-ik* conjugation and the formation of the archaic Hungarian passive, which offers certain insights into the role of the subject in the language; e., certain developments in Selkup, a language with a verbal system very similar to Hungarian's; and f., an analysis of the special *I-thee* ending *-lak/-lek*.

4a. The Objective Conjugation as an Agent Marker. Whenever the objective conjugation is used it positively identifies the subject of the verb as an agent—in no case is the objective ending used where an ABS pronoun would be used in ERG-ABS languages. Thus the objective conjugation always indicates ergativity, although ergativity does not always indicate that the objective conjugation will be used.

As mentioned before, the objective conjugation is used only when the object is third person definite—if the object is first or second person, even though these are definite, the subjective conjugation is used. This does not, however, invalidate the idea that the objective conjugation marks ergativity. According to Greenberg

(1997:64) Chukchi uses the absolutive subject pronouns when the objects are first and second person. Such a system would be easily explainable in that third person is the unmarked category with respect to first and second person (cf. Jakobson 1990:390), so it would be expected that distinctions would be made with respect to third person which would not with respect to the other persons. In addition, context would provide much more information in first and second person since these numbers are marked for involvement in the speech act. It may also be a factor that first and second person would tend to be marked as agent with respect to third person in general, but I do not have enough data to support or refute this idea at present. Suffice it to say that such a collapse of distinction with respect to first and second person objects does have precedent in ERG-ABS languages.

That Hungarian does not mark ergativity with respect to indefinite third person is somewhat more problematic, but other Finno-Ugric languages do seem to make similar distinctions. For example, compare Hungarian *tejet ittál* 'you drank milk' versus *a tejet ittad* 'you drank the milk'; with Finnish where milk in the first sentence would be in the partitive case and in the second it would be in the accusative. I will return to this subject briefly later on in the section on Selkup to show that there may well be a strong semantic motivation for the definite/indefinite distinction in third person.

4b. Connection between the Objective Conjugation and the Possessive System. In those Finno-Ugric languages which have an objective conjugation it seems to be the general rule that the objective conjugation is historically derived from the possessive system. This is the case with Hungarian (Abaffy 1980:221, Hajdu 1983:107). The first and second person singular suffixes are virtually identical (only the connecting vowels are different) and the remaining differences are easily explained historically. Table 2 presents a comparison of the objective and possessive endings.

Table 2. The nominal possessive endings of Hungarian
as compared to the objective conjugation.

		Singular	Plural
1st	poss	*-am, -em, -öm*	*-unk, -ünk*
	obj	*-om, -em, -öm*	*-juk, -jük*
2nd	poss	*-ad, -ed, -öd*	*-tok, -tek*
	obj	*-od, -ed, -öd*	*-jatok, -itek*
3rd	poss	*-a, -e*	*-uk, -ük*
	obj	*-ja, -i*	*-jak, -ik*

In third person and in second person plural the possessive endings are combined with a front *-i-/-j-* to yield the objective endings. The first person plural is more confused in that the subjective ending and the possessive are identical, but this seems to be a late development from an earlier subjective ending *-muk, -mük* (cf. *mik vogymuk* 'we are' in the *Hálloti beszéd* [funerary oration], an early Hungarian text). In any event, if we ignore the absence of the nasal in the objective form *-juk,-jük*, the relation between the possessive and the objective endings of first person plural seems to be the same as in third person and second person plural.

It is quite common for ergative pronouns to be historically derived from, if not identical to, possessive pronouns, as is the case in Choltí Mayan (Morán 1695:4–5 and Lodeiro & Lommel 1996). So the historical connection between the two sets of endings, while not proof that the objective conjugation serves ergatively in Hungarian, is a strong collaboration of this hypothesis.

4c. Single- and Double-Argument Predicates. The terms single- and double-argument predicates are borrowed from John Robertson's *A History of Tense/Aspect/Mood/Voice in the Mayan Verbal Complex* which presents a comprehensive theoretical framework for verbal analysis in Mayan languages. It happens that the following also fits Hungarian quite well.

According to Robertson (1996 p.c.) ERG-ABS languages make a fundamental distinction between verbs which take only one argument (single-argument predicates, or SAPS) and those which take two (double-argument predicates, or DAPS). SAPS are intransitive verbs, passives and anti-passives (i.e., normally transitive verbs which are used intransitively such as with *I love* in which no object is specified and the idea is a general one). DAPS are transitive verbs which require two arguments. In ERG-ABS languages there is a general rule that all saps take an ABS argument and that daps take an ergative argument in addition to the ABS.

A similar rule could be stated for Hungarian: **all SAPS take the subjective endings, while those DAPS which meet certain criteria** (as outlined in Section 3) **take the objective endings.** The distinction between DAPS and SAPS is one typical of ERG-ABS systems, but it is not generally made in pure NOM-ACC systems, since subjects of verbs are syntactically the same, regardless of the transitivity of the verb. The importance of the SAP/DAP distinction will be seen in 4d, which deals primarily with the formation of the Hungarian passive.

4d. The -ik Conjugation and the Hungarian Passive. In addition to the subjective and objective conjugations in Hungarian there is also a third conjugation which differs from the subjective conjugation in third person and first person singular as follows: first person singular *-ok, -ek, -ök* is replaced with *-om, -em, -öm* (although many speakers do in fact use the *-Vk* suffixes), and the third person singular is marked with the ending *-ik*. This is known as the *-ik* conjugation. With two exceptions (*iszik* 'he drinks' and *eszik* 'he eats') *-ik* verbs are intransitive, and the *-ik* ending is generally analyzed as a medio-passive. Some examples of *-ik* verbs are given in (6):

(6)	*dolgozik*	'he works'
	alszik	'he sleeps'
	hülyeskedik	'he's fooling or joking around'

Rather than calling *-ik* a medio-passive ending, I would argue that *-ik* marks that there is no agent in the verbal meaning. While this may seem like the same thing, I think it an important difference, since *-ik* can be used to actively suppress the agent role with some verbs, as in the pair *lát* 'he sees, can see' and *látszik* 'it can be seen, it seems or appears'. In the case of *látszik* the ending *-ik* suppresses the agent argument of the verb, so that which would normally be the object/patient is promoted to the subject and a resulting agentless action is seen. *Tör* 'break' in (7) (from Abaffy 1980:228–29) shows a similar type of agent suppression.

(7) a.	Diót tör	nut-ACC break	'he is breaking nuts'
b.	Feltörik a dio	up-break-ik the nut	'the nut is breaking (up)'

(The prefix *fel-* in (7)b is aspectual and is not significant in this analysis.) What is critical is to note that with the addition of *-ik* the verb takes on an agentless meaning. The nut breaks, but we are not told under what influence. Thus the agent role is entirely suppressed as a grammatical consideration.

With these verbs and others which can take *-ik*, *-ik* is what Robertson (p.c.) has termed an *argument killer*. It neutralizes the agent role. It is interesting to note that in the other persons the subjective endings are used (except for first person singular, but, as mentioned above, many speakers do use the subjective ending even here), which would be expected since *-ik* verbs take no object and are functionally SAPs. A similar thing can be seen in the formation of the Choltí passive, as in (8):

(8) a.	in-čohben et Dios	ERG 1.sing-love ABS 2sing God 'I love thee O God
b.	čohben-aj et Dios	love-PASS ABS2sing God 'Thou wert loved O God'

In b the ending *-aj* functions to suppress the ergative argument of*čohben* and leaves only the unmarked ABS pronoun referring to God, just as *-ik* suppresses the agent in Hungarian.

The Hungarian passive is formed from the causative (marked with *-tat-/-tet-* or *-at-/-et-*) plus *-ik* (Balázs 1979:42–55), as in *csinaltatik* 'it is done' (from *csinal* 'he does'), *látatik* 'it is seen' (from *lát*'he sees'), and *mondatik* 'it is said' (from *mond* 'he says'). A close connection is often seen in languages between the causative and the passive (Knott 1995:53). It appears that in Hungarian the causative endings marginalize the actual agent from the verbal action (it is expressed in the instrumental case if it is given at all) and that the addition of *-ik* suppresses the agent role entirely, leaving an action without either direct agent or causative agent. In this analysis the function of *-ik* can be seen to be consistently that of either suppressing what would be the ergative argument or indicating its absence.

Such a suppressive role supposes that Hungarian recognizes the ergative role in its grammar and that Hungarian also makes a distinction between SAPS and DAPS which is characteristic of ERG-ABS languages but which is not generally recognized in NOM-ACC languages.[1]

4e. Selkup. Selkup is a Uralic language spoken in Siberia. I mention it here because its verbal system is very similar to Hungarian's. The largest difference is that the objective conjugation marks all verbs with objects and the subjective is used in all other cases, with certain semantically motivated exceptions. This essentially amounts to a transitive and an intransitive conjugation, which is only a step away from an ergative system.

I mention Selkup because of the role that semantics can play in determining which conjugation is used for verbs, even where there is an object. Such a semantic motivation might account for the use of the objective conjugation in Hungarian only with definite objects. According to Jarmo Alatalo, a specialist in Selkup:

> "In imperative we find *mi-* 'give' in obj[ective] conj[ugation], but *mee-* 'make', throughout in subj[ective] conj[conjugation], which confirms the statement: the object of the latter verb is of [sic] semantic reasons always something that yet does not exist. In aorist objective conj. prevails, while in latentive, [which] expresses something [new] for the second or third person… subj.conj. dominates." (e-mail 9 May 1997)

It appears that Selkup makes a distinction between objects which are concrete and can be manipulated and objects which do not actually exist as concrete manipulable instantiations. Hungarian similarly seems to distinguish between definite manipulable objects, with regards to which ergativity can be marked through the objective conjugation, and indefinite objects which cannot themselves be manipulated, with regards to which ergativity is not marked and the subjective conjugation is used. This may be an explanation as to why ergativity is marked in Hungarian only with definite direct objects. (This semantic explanation is at odds with typical formal attempts to define the use of the two conjugations strictly in terms of coocurrence, e.g. Marcantonio 1985:267.)

4f. The Ending -lak, -lek. Hungarian has a special ending to indicate the *I-thee* relationship on verbs, as in *szeretlek* 'I love thee'. With an expressed object pronoun it can also be used for the *I-you(plur)* relationship, as in *szeretlek benneteket* 'I love you(plur)'. This ending is obviously the combination of the unmarked second person subjective(!) ending *-l* and the unmarked first person singular ending *-ok, -ak, -ek*. It is noteworthy that the unmarked ending *-l* functions as an object pronoun, just as would be expected of an *absolutive* ending in an ERG-ABS language.

In a strictly NOM-ACC system there is no way to account for the use of a subject ending to indicate a direct object. However, in the modified ergative system I propose for Hungarian the motivation for this usage is apparent. The *-l* is an absolutive as marked on the verb (there are no independent ergative or absolutive pronouns in the language). The unmarked *-Vk* is used for the first person since ergativity is not marked with respect to the second person direct object. Such an explanation is not possible if it is assumed that Hungarian is a pure NOM-ACC language.

5. Conclusion

From the data presented in my paper I think it is clear that Hungarian, while a nominative-accusative language at its most fundamental level, also marks a sort of ergative-absolutive distinction in its verbal system through the use of its two conjugations. The fundamental role of the objective conjugation is that of an ergative conjugation, whereas the subjective conjugation is an unmarked conjugation which would roughly correspond to an absolutive conjugation. This system differs from typical ERG-ABS systems in that it is not recognized in the independent pronominal system—it is instead marked only in the verbal endings.

This hypothesis, if confirmed by more study, would indicate that Hungarian typologically belongs among those languages which overtly mark both the NOM-ACC and the ERG-ABS distinctions instead of amongst those languages which are strictly NOM-ACC.

To the best of my knowledge, there are no other analyses of the dual conjugations of Hungarian in this light. I feel that this analysis provides the beginnings of a framework in which other aspects of the Hungarian verbal-complex might be clarified in the future.

NOTE

[1] I must admit that NOM-ACC languages often do recognize these distinctions to a greater or lesser degree. For example, in Latin there are a number of deponent verbs such as *morior* 'to die' and *loquor* 'to speak' which, while passive in form, are active in meaning. These may be somewhat parallel to Hungarian *-ik* verbs in terms of their semantics.

In addition the Indo-European neuter gender seems to be marked for non-agency and there are no superficially nominative forms of neuters (as in *saxum* 'stone' which can be either nominative or accusative, but which displays apparent accusative form in the suffix *-um*). (This I had surmised earlier, but it was explained to me in greater detail by Ferenc Havás and Toby Griffen at the 1997 LACUS meeting.)

REFERENCES

Abaffy, Erzsébet. 1980. "The Connection between Verbal System and Conjugation in Old Hungarian." *Acta linguistica Academiae Scientarum Hungaricae* 31:221–38.

Balázs, János. 1979. "A magyar szenvedo˝ szerkezet, as ikes ragozas és a müvelteto˝ igeképzés eredete." *Magyar nyelv* 75:42–55.

Bátori, István. 1990. "Die Markierung des Objekts am Verb in Mordwinischen: morphologische Unterbestimmtheit und Homomorphologie." *Nyelvtudományi közlemények* 91:15–23.

Greenberg, Joseph. 1997. "Some Grammatical Evidence for Eurasiatic, Especially Pronominal." *LACUS Forum* 23, 57–65.

Hajdu, Peter. 1983. "The Main Characteristic Features of the Uralic Languages." *Acta linguistica Academiae Scientarum Hungaricae* 33:101–12.

Jakobson, Roman. 1990. *On Language*. Cambridge, MA: Harvard University Press.

Knott, Judith. 1995. "The Causative-Passive Correlation." In *Subject, Voice and Ergativity*, ed. David C. Bennett, Theodora Bynon and B. George Hewitt, 53–59. London: School of Oriental and African Studies, University of London.

Lodeiro, Raquel, & Arle Lommel. *Grammar of the Cholti Language*. Unpublished manuscript translation of Morán 1695, with commentary.

Marcantonio, Angela. 1995. "On the Definite vs. Indefinite Conjugation in Hungarian: A Typological and Diachronic Analysis." *Acta linguistica Academiae Scientarum Hungaricae* 35:267–98.

Morán, Francisco. 1695. Arte en lengua cholti qui quiere decir lengua de milperos. H080, 497.46, M793A. William E. Gates Collection. Brigham Young University Library.

Robertson, John. 1992. *The History of Tense/Aspect/Mood/Voice in the Mayan Verbal Complex*. Austin: University of Texas Press.

THE (IN)EXPLICABLE DUALITY OF BEING?
ON TWO TYPES OF PREDICATIVES IN POLISH

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1. The Problem

In Polish, the utterance of the type: *John is an engineer* may have two different counterparts:[1]

(la) *Jan to inżynier*
John TO engineer-Nom.

(1b) *Jan jest inżynierem*
John is engineer-Instr.

The two types of construction will normally be treated (see e.g. Heinz 1965) as synonymous, as stylistic variants, even though their structure is clearly different. Such a treatment results from the fact that the linguistic means responsible for the different constitution of the two constructions are normally classified as belonging to the realm of morphology, are thought to be grammatical elements with no or little semantic value.

1.1. Difference in Structure. Let us consider the structural differences between (1a) and (Ib). The most evident of them concerns the presence of the verb *być* 'to be', quite unquestionably a bearer of independent meaning. However, its absence in (la) can be explained by the elision of the copula – dictated, for instance, by stylistic reasons. Indeed, the construction of TO with *być*, if rare, is completely plausible and exists in the Polish language.[2] The remaining elements responsible for the difference in structure will normally be classified as almost meaningless grammatical words: the demonstrative TO 'this/it' in (la) and the different case forms applied – the Nominative in (la) and the Instrumental in (1b).

1.2. Meaningfulness of Diverging Elements. The TO demonstrative has been described as creating a parallel between the subject and its complement. Rothstein (1986:313 f.) defines the role of the form as "equation" and argues after Topolińska (1971-2): "The sentence *X to Y [...]* states that the referent of X has the feature or features that the referent of Y also has, and therefore the name Y can be applied in appropriate circumstances to the referent of X." However, the form's denotation is defined as marking of "the logical operation equation" (Rothstein 1986:320) rather than as possessing full lexical meaning.

As for case markers, they seem to be grammatical words par excellence. Embodied in the structure of language for thousands of years, dependent on other elements of the linguistic structure, considerably shorter than lexical items, they are normally claimed not to possess any meaning whatsoever. This position has been summarized as follows: "[C]ase markers are semantically empty elements whose function is strictly grammatical" (Langacker 1991:379). This is the position held by the most influential linguistic school of the second half of our century, Chomsky's formal model: "[O]ne of the central assumptions of Government and Binding case theory [is] that case distribution is exhaustively determined by structural relations between the case assigner and assignee" (Babby 1987:136, quoted in Janda 1993).

1.3. Testing the Assumption. If the structural difference between the TO-Nominative and the Instrumental predicatives is indeed caused by the replacement of elements with no semantic value, it follows clearly that no semantic difference exists between the two constructions. Extrapolating, we can quite safely assume that if the two are used in identical contexts, the two resulting utterances will also be synonymous. In order to test this assumption, let us examine how the TO-Nominative and the Instrumental predicative constructions are used in the Polish translation of Michael Ondaatje's *The English Patient*.[3]

2. Juxtapositions of the Two Constructions

In the text of the novel, the two constructions are juxtaposed in almost-identical contexts in two types of situation: 1) when they appear in a very short stretch of text (within one sentence or in subsequent sentences) and 2) when they are used with similar lexical items.

2.1 The Same Span of Text. Let us analyse one such juxtaposition:

(2) *W blasku dnia okazałoby się, że to pole. Teraz było areną.* (O 163)
In broad daylight it would turn out to be a field. Now it was an arena.

In (2), the TO-Nominative and the Instrumental predicative are used next to each other, and one can argue that they describe the same objective situation. Therefore, if the external context is identical for the two, the meaning of the utterances should be identical. It is clearly different, however. While the first of the sentences, employing the TO-Nominative construction, refers obviously to the stable, "objective" features perception of the site – a grassy stretch in the English countryside – the second, making use of the Instrumental predicative, provides a "biased," "subjective" image of the field. Regardless of its objective nature, the field is now seen as a stage of the fight of the Indian sapper with an unknown fuse, a life-or-death duel with an enemy.

2.1.1. The Instrumental Predicative: Temporary Status? Such a description of the Instrumental predicative as referring to the unstable features of the described entity is in accordance with earlier insights into the semantics of the constructon. E.g. Russian has been claimed to possess an opposition between the Nominative and the Instrumental predicative constructions, the former referring to the permanent, the latter to the temporary traits of the object of the description (Jakobson 1936/1984). However, the term *temporary* may be too narrow to render adequately the semantics of the Instrumental predicative. E.g., the contrast between the descriptions in (2) cannot be satisfactorily described as the opposition between the temporary and the permanent nature of the field. Other factors are at play here as well, notably the degree of subjectivity. The inadequacy of the permanent/temporary opposition is also suggested by the character of the lexical means that collaborate with the Instrumental form to express in the text of the novel the temporary, subjective character of the portrayal.

Over two thirds of the Instrumental predicatives in the novel are accompanied by linguistic means expressing the distancing from the typical stable perception. Only a handful of those are of temporal character, most obviously the adverbial expressions of time like *czasem* 'sometimes' and *teraz* 'now'. The choice of the main verb and of its form also contributes to the distancing, but in a less obviously temporal sense: While the verbs like *zostać*, *stać się* 'to become' and *uczynić* 'to render' locate the action at a point different than the present, they can hardly be claimed to characterize it as temporal. This is even more evident when the conditional form of the verb is used.

The remaining expressions accompanying the Instrumental predicative are clearly non-temporal: adjectival quantifiers like *jawny* 'apparent' or *akąpy* 'scanty'; indicators of degree – *jedyny* 'the only', *tylko* 'only', *w większym stopniu* 'to a greater extent', *w ogóle* 'at all'; and finaily the indicators of subjectivity: *dla nich* 'for them', *w jego przekonaniu* 'in his opinion', *sobie* 'to himself'.

All of the above are intuitively felt to form a class, even though they can hardly be described with one cover term: Neither Jakobson's *temporary status* nor *subjective perception* provide a satisfactory explanation of the semantic value of those.

2.2. Juxtaposition: Similar Lexical Items. Let us now analyze an instance of the TO-Nominative and the Instrumental occurring in the second type of the almost-identical context: in utterances built of similar lexical items. In a further attempt to limit the influence of the context, let us choose utterances where the two constructions are applied on pronouns, whose own semantic input is considerably reduced:

(3a) *Młody Sikh nie miał pojęcia, co to jest łosoś.* (O 95)
The young Sikh had no idea what a salmon is.

(3b) *Armie obu stron przetaczaly się przez pustynię, w ogóle nie zdając*
sobie sprawy z tego, czym ona jest. (O 265)
The armies of both sides rolled through the desert not realising at all
what it was.

The two utterances are similar in structure: Both contain in the main clause expressions referring to cognition/awareness and in the subordinate clause indirect questions with a predicative construction. Additionally, the main clauses in both sentences are in the negative and the subordinate clauses employ the pronominal *co* 'what'. Also the semantic content of the two utterances is very similar. Still, the two sentences employ different predicative constructions: (3a) the TO-Nominative predicative and (3b) the Instrumental one. Is the choice accidental? Can the other predicative construction be used in the same context?

Analyzing the two sentences, we discover that the substitution of the other predicative form, if possible at all, would entail serious semantic change. Indeed, if the utterance *Nie miał pojęcia, czym jest łosoś* is plausible, it is intuitively felt to possess a completely different sense from the utterance in (3a); for (3b) the substitution is nonsensical: *[...] nie zdając sobie w ogóle sprawy, co to jest* is a linguistic and logical horror. Why is it so? Why does the replacement of the allegedly synonymous constructions prove impossible?

2.2.1. the Instrumental Predicative: Permanent Nature? Let us consider the context of the two constructions:

(4a) *Oficer zapytał: „A co to takiego? Tłuszcz po wędzonym łososiu?" – i*
The officer asked: – What is this? Smoked salmon grease? – and
wszyscy się roześmieli. Młody Sikh nie miał pojęcia, co to jest łosoś, ale
everybody laughted. The young Sikh had no idea what salmon is, but
od tego czasu uzyskał swe słone, rybie przezwisko.
since then he bore his salty, fish nickname. (O 95)

(4b) *Czy byłem klątwą rzuconą na[...] pustynię zgwałconą przez wojnę*
Was I a curse cast upon the desert raped by war,
ostrzeliwaną, jakby była tylko piaskiem? Barbarzyńcy przeciw
shelled as if it were just sand? Barbarians against
barbarzyńcom. Armie obu stron przetaczały się przez pustynię w ogóle
barbarians. Armies of both the sides rolled through the desert, not
nie zdając sobie sprawy z tego, czym ona jest. Pustynie libijskie.
realizing at all what it is. Libyan deserts.

> *Jeśli odsuniesz na bok politykę, jest to najpiękniejsza nazwa, jaką znam.*
> If you put politics aside, it is the most beautiful name I know.
> *Libia. Seksualne, wydłużone słowo, stosowne do pieszczoty.*
> Libya. A sexual, prolonged word, appropriate for a caress.
> (O 265)

Analyzing the context the two constructions appear in, we perceive that the two utterances require different responses. The question in (3a) calls for a simple identification, as revealed by the context it appears in. Here, the soldier encounters a word that is unfamiliar to him and is at a loss to explain what sort of object (animal?) the grease comes from. What he requires is a simple definition of the sort: "Salmon is a (North Atlantic) fish...." In contrast, what is at stake in (3b) is much more than simple identification, as testified to by the adverbial expression *w ogóle* 'at all' attached to the main verb, and also by a broader context. Here, the nature of the desert in a more profound sense is focused upon. It is the importance of the desert to the narrator personally which is salient.

This difference can be to a large extent traced back to the meaning brought in by the other elements of the context, but the choice of the predicative construction also contributes to the final meaning of the whole utterance. If *czym* were to be applied in (3a), the whole question would call for a further characterization of the salmon, e.g.: "Salmon is the symbol of the free North Atlantic fauna," or "Salmon is the food of the rich." The sentence resulting from the application of the TO-Nominative construction in (3b), however difficult to accept, would require a definition of the desert in objective, scientific terms, and not the emotional description that (3b) provides.

3. The Semantics and Structure of the Two Constructions

As the above examples show, there is a clear difference in meaning between the two predicative constructions, and this divergence is used by the author to contrast different perceptions of the same situation or entity. However, the two predicatives do not seem to possess stable meaning. This concerns most clearly the Instrumental predicative: Even if remaining in clear opposition to TO-Nominative, it appears to evoke diverging, even contrasting images in its different uses. In (2), the Instrumental construction seems to refer to the temporary, subjective aspects of the described entity (the field). In (3b), in contrast, it is used to describe the real, lasting nature of the thing described (the desert). Can these apparently contrasting depictions be linked to a common meaning? Why are the Instrumental predicatives in (2) and (3b) clearly felt to be in contrast to the TO-Nominative portrayals even if they themselves seem to have quite different meanings? In an attempt to answer those questons, let us analyze the composition of the two predicative constructions.

3.1. To-nominative: Meaning and Usage. In the utterances analyzed above, the TO-Nominative was shown to identify the object of the description. This predicative construction employs the basic, Nominative form of the noun, which is "the vehicle of the pure naming function" (Jakobson 1984:67). If we combine this meaning with the contribution of the demonstrative marker TO 'it, this', the identifying effect is easily understood. The TO-Nominative points to, names an entity perceptible to the hearer either in their concrete field of vision or within their mental scope. That is why the TO-Nominative construction, apart from concrete uses, will often be employed to produce widely accepted descriptions of entities, as in the definition of the salmon in (3a). An entity can also be made perceptible by a previous mention in the communication process, e.g. in the text. That is why the TO-Nominative structure will often be used to refer to a previously identified entity, e.g. at the end of the description. This use is contrasted with that of the Instrumental construction, which will often open a descriptive passage. Pairs of predicative constructions will be found in the two positions: the Instrumental form will be used to introduce the subject, and the initial statement will be reiterated at the close of the passage with the use of the TO-Nominative.

However, the same TO-Nominative structure may be used for novel portrayals, going beyond the conventional descriptions. In this case, the semantic effect of such an application will be the stronger, as the author imposes his/her perception of the entity as given and easily identifiable, against the reader's intuition.

3.2. Instrumental. The Instrumental portrayal, as described above, often combines with indicators of unstable, uncertain, subjective status and is generally felt to describe the nature of the entity less fully: "The predicative Instrument [...] evokes only one of the characteristics of the subject's significance" (Bacz 1993:147). This is manifested in uses like (2). On the other hand, though, in utterances like (3b) the construction refers to the fundamental, permanent nature of the described object or person. It is far from obvious that these different meanings are linked at all.

Still, the same grammatical means are employed to express those apparently divergent meanings. Let us consider the composition of this construction. It makes use of the Instrumental case of the noun. Normally, the Instrumental marking denotes that the entity so marked is the tool with which the action referred to by the main verb is conducted. This meaning does not seem to satisfactorily describe the role of the Instrumental-marked nominals in either (2) or (3b).

3.2.1. Influence of Other Elements of the Utterance. Let us re-examine the function of the Instrumental predicative in the text, as contrasted with that of the TO-Nominative. One of the most striking direct juxtapositions of the two constructions to be found in the text concerns the central issue of the novel.

Ondaatje's novel revolves around the question of the identity of the "English patient," a man who has been recovered from the desert burnt beyond recognition. Repeatedly, questions, doubts and speculations are voiced in the form: Who is he? The Polish translation consistently uses the Instrumental form *Kim on jest* rather than the TO-Nominative *Kto to jest?* This results from the fact that what is at stake is much more than the "identity" of the patient understood in terms of family name and curriculum vitae. This is revealed dramatically in the climactic moment of the novel, when the Indian sapper Kip learns of the bomb dropped on Hiroshima. Disillusioned and angered, he attempts to kill the mysterious burnt man, a symbolic act aimed at breaking the spell of the English culture on him. When he is told that the "English patient" is not English at all (*On nie jest Anglikiem*), he cries out in bitter despair:

(5) *Może to Amerykanin, Francuz... Od kiedy zaczęliście zrzucać bomby na kolorowych, wszyscy jesteście Anglikami.* (O 294)
Maybe it's an American, a Frenchman... Since you started to drop bombs on the people of color, you are all English.

In his outcry, Kip rejects the objective identification of the "English patient" as revealed by his nationality, seeking a more profound understanding, craving for the man's real identity. These two disparate perspectives are expressed, among others, by the choice of the predicative construction. Predictably, while the "objective," widely-accepted answer to this question employs the TO-Nominative, Kip's own perception is expressed with the help of the instrumental portrayal. What is less expected, however, is the fact that this example cuts across the temporary/permanent, subjective/objective opposition that we have drawn for the Instrumental predicatives. Kip's definition of the man's nature (and that of the whole Western civilization) is at once profoundly subjective and penetratingly revealing; even though set off by a particular historical event, it illuminates a permanent truth about man's nature.

Maybe, then, the different attributes that we ascribe to the different uses of the Instrumental are no more than labels that do not elucidate the true nature of the form? Let us reconsider the examples that we have unambiguously classified before as either the temporary, subjective or the permanent, objective portrayals. If we view the two utterances in (2) and (3b) in this new perspective, we see clearly that in fact both of them express the speaker's subjective point of view. The temporary or permanent character of the portrayal, however, does not seem to result directly from the use of the Instrumental construction, but is rather the effect of the composition of senses of all the components of the utterance. Quite unquestionably, though, due to the presence of the Instrumental, the utterance is referred to a level of identification more profound than simple naming or pointing out (hence the opposition with the TO-Nominative).

Therefore, we have resolved the second of the problems raised at the beginning of this section. If the Instrumental construction is felt to be in opposition to the TO-Nominative one in both its "permanent" and "temporary" uses, it is due to the fact that these two senses arise from the composition of senses and are not at all the meaning of the Instrumental itself. Let us now address the first and more fundamental of the questions: what is the common meaning of all the predicative uses of the Instrumental?

Above, we have described the basic meaning of the form as that of the instrument of the action referred to by the main verb of the sentence and we have noted that this meaning does not seem satisfactory as a description of the Instrumental predicatives. In the predicative constructions, however, the main verb is most often *być* 'to be'. The verb does not denote any concrete action, therefore the Instrumental-marked entity cannot be the instrument in the most obvious sense. A vast majority of the Instrumental uses that would be readily recognized as predicative employ either *być* 'to be' or one of a handful of semantically related verbs: *czuć się* 'feel', *zostać* 'become', *uczynić* 'render', etc. The fact that the whole ensemble of the predicative constructions employs a narrow scope of semantically linked verbs suggests that the predicative reading is indeed imposed by the verb applied in the construction, and the resulting parallel between the subject and the epithet, rather than being an inherent meaning of the Instrumental form.

Let us then consider a construction of the Instrumental with a verb from outside the *być* group. The following is a pair of sentences employing the verb *nazywać* 'to name' with an Instrumental-marked nominal:

(6a) *Marynarze nazywają ten czerwony wiatr 'morzem ciemności'.* (O 24)
Sailors call this red wind 'the sea of darkness'.

(6b) *Ludzie sporządzający mapy nazywali nowo odkryte miejsca imionami kochanek.* (O 150)
"People preparing maps called the newly discovered places with the names of their lovers."

Outwardly, the structure and the denotation of the two utterances is parallel. Still, while the Instrumental construction in (6a) would readily be identified as "predicative," the same interpretation for (6b) is much more dubious. The natural reading of (6b) is one in which the "names of lovers" rather than an epithet attributed to the places, are indeed the instrument of the action - the christening of the site.

Therefore, we observe, an utterance employing the Instrumental construction with a given verb may be classified either as predicative or as "instrumental." The example of sentences in (6a) and (6b) illustrates the tendency to classify the uses of the Instrumental on a basis other than its own meaning and function. Here, the crucial difference lies in the meaning of the Instrumental-marked noun, and its compatibility with the verbal meaning, which disables the predicative reading in (6b). It can be postulated that the "predicative" sense attributed to some of the uses of the Instrumental is in fact the effect of a composition of the different senses contributed by the different elements of the utterance. What follows from this is that it can be argued that the Instrumental possesses no predicative function at all: all the uses thus classified arise in fact from the combination of the basic meaning of the form with the senses contributed by other elements of the predicative construction and their composition.

3.2.2. The Instrumental Predicative: the Instrument of Characterization. In the examples discussed above, the Instrumental marking is applied to express the fact that a given name/property is a role that is imposed on the subject in the speaker's perception. This is seen most clearly in sentences like (1b), where the occupation of the person is clearly merely a capacity they act in.[4] The same meaning can be observed, though less obviously, for the Instrumental construction in (5): Here, the nationality of the person is a tool of describing their character.

This meaning of the *role* is brought in by the Instrumental marking, which imposes the perception of the thus-marked nominal as an instrument, auxiliary enabling the action, in this case the existence of the person or object or person described. Even if the label "the instrument of existence" is somewhat radical, quite unarguably the predicative meaning appears to be the combination of the auxiliary role denoted by the Instrumental with the existential sense of the verb 'to be'.

4. Conclusion

As we have seen in the analysis above, each of the two predicative constructions in question has a distinctive meaning, which can be traced back to the elements composing the two constructions. The combination of the demonstrative TO and of the Nominative case produces, unsurprisingly, the "pointing" effect, evident in all the uses of the TO-Nominative. The meaning of the Instrumental predicative, however, is not easily explained by the summing-up of the role of "instrument" and the existential sense brought in by the main verb. This results partly from the fact that, unlike the senses of the TO demonstrative and the Nominative case, the meanings of the verb *być* and the Instrumental case are quite incompatible. Therefore, the combination of the two in the Instrumental predicative construction produces a semantic effect distant from the meaning of either of its component parts. One can also speculate that the usage and the meaning of the construction as a whole has been conventionalized, being stored as a whole, and the contribution of its component elements is no longer consciously perceived in many uses.

We have demonstrated above that the "instrument" sense is still evident in some uses, and may even be consciously employed for special effects, as in (5). In the remaining examples discussed above, the role of the Instrumental-marked entity as the instrument of the action described is less obvious. However, as we have seen above, the interpretation of the whole predicative construction is a function of all the meanings contributed by its different components, and may not be directly linked to the meaning of the Instrumental itself. An element that is particularly responsible for the predicative reading is the existential character of the main verb of the sentence. In the analysis of (6a) and (6b), we have clearly seen that the predicative reading is imposed by factors other than the meaning of the Instrumental marking. Still, even in those conventionalized uses, the basic meaning of the Instrumental, though not observable directly, can be demonstrated to remain in agreement with other, indubitably meaning-bearing, elements of the utterance. The relative value of the instrument applied only for a particular operation, collaborates with the "distancing" expressions listed in 2.1.1. above. Such "distancers" are to be found in the Instrumental utterances in (2) (*teraz*) and (5) (the temporal clause of *kiedy zaczęliście zrzucaċ bomby...*).

All these facts suggest strongly that among the different attempts to describe the role of the Instrumental predicative constructions, the most elucidating is the one that derives it from the combination of the auxiliary role denoted by the Instrumental with the existential sense of the verb 'to be'.

The above analysis is presented in the hope of contributing to the studies on the semantics of grammatical forms and of further supporting the fact that even forms as grammaticalized as the case markers possess a meaning of their own and collaborate with other linguistic means in creating the final semantic effect.

NOTES

1. Additionally, the BE+Nom. construction is found (*Jan jest inżynier/chłop/cham*), but it occurs in a limited set of contexts and registers.

2. One example of the predicative construction employing both TO and *byċ* a that providing direct contrast to the Instrumental construction of f3a):

> *[Pustynia] jest to olbryzymia płachta [...]* (0 148)
> The desert is an immense sheet.

3. All the examples are extracted from the Polish translation of *The English Patient* by Wacław Sadkowski. In the line following, retranslations into English (by the author of the present article) are provided, rather than the appropriate passages of the novel's original. This is done for sake of simplicity: In some of the quoted examples, the text of the translation departs from the meaning of the original to an extent that would necessitate lengthy explanations.

4. This interpretation is supported by the fact that while the occupation of person is conventionally Instrumental-marked in Polish, the instrumentalizing of a person's name is impossible under normal conditions:

Inżynier jest Janem
Engineer is John-Instr.

This results from the fact that a job can be easily perceived as a person's role, while the same operation concerning the name of the person is quite inconceivable.

REFERENCES

Babby, L. H. 1986. "The Locus of Case Assignment and the Direction of Perlocation: Case Theory and Russian," in: R. D. Brecht and J.S. Levine (eds.), pp. 170-219.

Bacz, B. 1993, "On the Instrumental in Polish," *LACUS Forum* 20, 418-427.

Brecht, R. D. and Levine, J. S.. 1986 (eds.). *Case in Slavic*, Columbus, Slavica Publishers Inc.

Heinz, A. 1965. "System przypadkowy języka polskiego," Zeszyty Naukowe Uniwersytetu Jagiellońskiego, Prace językoznawcze z. 13, Kraków, Wydawnictwo Uniwersytetu Jagiellońskiego.

Janda, L. A. 1993. *A Geography of Case Semantics: The Czech Dative and the Russian Instrumental*. Berlin: Mouton.

Jakobson, R. 1984. *Russian and Slavic Grammar. Studies 1931-1981*. Berlin: Mouton.

Langacker, R.W. 1991. *Concept, Image and Symbol: The Cognitive Basis of Grammar*. Berlin: Mouton.

Ondaatje, M. 1994. *Angielski pacjent*, trans. By W. Sadkowski. Warszawa: MUZA S.A.

Rothstein, R.A. 1986. "Equation vs. Ascription: The Nominative/Instrumental Opposition in West Slavic," in R.D.Brecht and J.S. Levine (eds.)

Topolińska, Z. 1971-2m. "Wtórna copula 'to' w polskim języku literackim," *Zbornik filozofickiej fakulty Univerzity Komenského* 23-24.207.12.

INFINITIVAL SUBJECT CONTROL AND CORPUS EVIDENCE

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The need to work out a system of control assignment has been recognized since Radford (1981: 381).* He pointed out that control assignment properties of matrix verbs are not arbitrary. If they were, they would be expected to "vary in random fashion from dialect to dialect, or language to language," and this is clearly not true. On the contrary, verbs with certain semantic properties take subject control and others with different semantic properties take object control (cf. Radford 1981: 381).

The present article has the aim of shedding light on the properties of verbs selecting infinitival subject control. A large number of verbs in present-day English are of this type. *Decide* is a case in point, as in (1). Adopting some assumptions that are fairly standard, though not altogether uncontroversial, it may be analyzed as in (1'), at least in a minimal way.

(1) John decided to leave immediately.
(1') $[[\text{John}]_{NP1}\ [\text{decided}]_{Verb1}\ [[\text{PRO}]_{NP2}\ \text{to}\ [\text{leave}]_{Verb2}\ \text{immediately}]_{S2}]_{S1}$

Verb_1 in (1') designates the matrix verb. There are different types of such matrix verbs and the task of providing a system for their analysis and especially for the analysis of their semantic properties is an important aspect of control theory.

This task of control theory is no simple one, even where present-day English is concerned. Obviously, the system should be comprehensive and cover the data as fully as possible, but it should also be compact, coherent, and elegant. As sometimes in other areas of linguistic investigation, there tends to be a tension between comprehensiveness of coverage and elegance of analysis. Here a brief consideration will be offered of two important systems for analyzing relevant matrix verbs, one (Visser 1969) chosen for comprehensiveness of coverage and the other (Sag and Pollard 1991) chosen for its elegance. Attention will then turn to a development of the system worked out by the present author (Rudanko 1989). In connection with this third taxonomy corpus data will be used. Such data will be limited to British English, but will include material both from present-day English and from the nineteenth century. For present-day English, the G and K parts of the LOB corpus are included, amounting to some 220,000 words. For nineteenth century English, three segments of the Corpus of Nineteenth Century English, amounting to some 270,000 words (see below) will be used. The genres selected from the two corpora do not exactly match, but an effort has been made to choose similar genres and to this end, the genre of fiction, or general fiction, is included from both.

Visser (1969: 1311 ff.) does not use the term "subject control," but his classes can be seen as a system for characterizing matrix verbs governing infinitival subject control. Indeed, his is a comprehensive system, possibly the most comprehensive ever attempted, at least from a diachronic point of view. It would be impractical to review the whole of his system here, but an idea of its character, sufficient for our present purposes, may be gained by considering his first three classes, presented here with some typical verbs from each.

> Class I Verbs expressing desire, liking, preference: *desire, like, long, love, prefer, want, wish, yearn.*
> Class II Verbs of emotion: *delight, disdain, hate, loathe, scorn.*
> Class III Verbs expressing fear: *dread, fear, scruple.*

There are in all some fifteen classes of this type, a fairly high number. They are all on a level footing and there is little or no discussion of their potential relations. (For instance, in the case of the three classes mentioned, one might wonder whether desire and fear might not be emotions and whether this might not be reflected in the taxonomy.)

Another important systematization of verbs of subject control is provided by Sag and Pollard (1991). Instead of fifteen classes, they only have two. Here they are, with their lists of examples (Sag and Pollard 1991: 65).

> PROMISE type [subject control]: *promise, swear, agree, contract, pledge, vow, try, intend, refuse, choose, decline, decide, demand, endeavor, attempt, threaten, undertake, propose, offer, aim.*
> WANT/EXPECT type [subject control]: *want, desire, fancy, wish, ache, hanker, itch, long, need, hope, thirst, yearn, hate, aspire, expect.*

Sag and Pollard characterize verbs of their *promise*-type as follows:

> The *promise*-type verbs also exhibit semantic uniformity. The semantic analysis of these verbs involves soas [states of affairs, JR] which contain a relation of a type that we may refer to (perhaps somewhat inaccurately) as COMMITMENT. Commitments involve a typically animate participant which we may identify as COMMITTOR, and a soa-arg, in this case the action the committor commits to performing (or to NOT performing, in the case of verbs like *refuse* or *decline*). Such commitment-type relations also allow a third role, which we may

> refer to as COMMISSEE, the individual to whom the commitment is made. (Sag and Pollard 1991: 66)

As for the semantic content of their *want/expect*-type:

> Similarly, the *want/expect*-type verbs all involve desire, expectation, or similar mental orientation toward a given soa. We will refer to these as ORIENTATION relations, and will characterize their associated roles as EXPERIENCER (the participant who experiences the appropriate orientation) and soa-arg (here the soa towards which the experiencer is oriented). (Sag and Pollard 1991: 66)

Sag and Pollard deserve a great deal of credit for their analyses of their two classes, and there is little doubt that it is helpful to refer to states of affairs in characterizing infinitival complement constructions and matrix verbs governing them. To be sure, one might inquire into the concept of orientation and perhaps also wonder whether commitment might also be an orientation, but this would not be a serious criticism, only a terminological quibble. More importantly, it seems that for the analysis of actually occurring data, it is useful to employ a systematization that is finer-grained than their schema with only two types of verbs. From a diachronic point of view the need for a more delicately nuanced system seems clear in the light of Teresa Fanego's recent work on complementation. Her research, especially Fanego (1996), is important and insightful precisely because she demonstrates that diachronic change affecting the complementation system of English can be explicated on the basis of different semantic types of matrix verbs: complements of certain types of verbs are seen to be affected first or more fully by historical change, while those of other types of verbs are affected later or less fully. It clearly emerges from her work that more than two semantic types are needed for an explication of diachronic change affecting subject control construals.

One framework that is finer-grained than Sag and Pollard's (and in fact predates their analysis) is offered in Rudanko (1989). In this study, the discussion of subject control verbs is to a large extent based on the notion of volition, and on hierarchies of volition. Within the general hierarchy, verbs involving positive volition form by far the largest class; and within this class three main subclasses are further distinguished, namely, those of desideration, of desideration and intention, and of desideration, intention and endeavor. Here we will change the term "endeavor" to the term "effort," in accordance with Fanego's more recent analysis, and make one or two other minor adjustments. The main features of the modified system are presented below in (2). The examples of verbs are from LOB G and LOB K and the numbers after the verbs indicate the number of the tokens of the verb in question in these two subcorpora.[1]

(2) (1) Verb$_1$ is +volitional
- (1.1) Verb$_1$ expresses positive volition
- (1.1.1) Verb$_1$ expresses desideration, with the approximate paraphrase 'to want' or 'to want intensely':
  - *ache* (1), *care* (3), *hope* (15), *like* (31), *long* (4), *prefer* (10), *wait* (4), *want* (79), *wish* (18).
- (1.1.2) Verb$_1$ expresses intention;
- (1.1.2.1) Verb$_1$ implies that NP$_1$ communicates the intention:
  - *agree* (3), *consent* (1); *ask* (1); *offer* (2), *promise* (4), *threaten* (2), *undertake* (5).
- (1.1.2.2) Verb$_1$ expresses a decision or an intention that is not necessarily communicated:
  - *choose* (7), *decide* (14), *determine* (4), *resolve* (3); *intend* (12), *mean* (2), *plan* (4), *propose* (5).
- (1.1.3) Verb$_1$ expresses a degree of effort on the part of NP$_1$:
  - *arrange* (4), *attempt* (12), *contrive* (6), *endeavor* (3), *hasten* (2), *learn* (19), *manage* (14), *prepare* (3), *seek* (17), *set out* (8), *strive* (6), *try* (86), *vie* (1).
- (1.1.4) Others:
  - *dare* (3), *venture* (1); *proceed* (3).
- (1.2) Verb$_1$ expresses negative volition:
  - *disdain* (1), *refuse* (11).
- (1.3) Others: *afford* (4); *(not) bear* (3); *forget* (4).
- (2) Verb$_1$ is either +volitional or -volitional:
  - *assist* (1), *help* (6); *fail* (15), *omit* (4).
- (3) Verb$_1$ is -volitional
- (3.1) Verb$_1$ has the approximate meaning of 'assert':
  - *claim* (4), *profess* (1), *purport* (1).
- (3.2) Others:
  - *pretend* (9), *serve* (7).

Of course, it is not being claimed that verbs of each class are synonymous with each other. Instead, the taxonomy is meant to express ingredients of meaning that are shared by members of each class. Sometimes it is possible to find a verb that is a prototypical member of the class in question, in that it comes close to expressing the shared element of meaning. For class 1.1.1 *want* suggests itself as a prototypical verb. As for 1.1.2, it contains several subclasses: for discussion of 1.1.2.1, see Rudanko (1989: 29 ff.), for 1.1.2.2 *intend* suggests itself as a prototypical verb. As for 1.1.3, *endeavor* or perhaps *seek* might be offered as core verbs of the class.

The term "volition" is used to give structure to the taxonomy. As employed here, it focuses on the disposition of the entity referred to by NP$_1$ toward the action or state of affairs expressed by the lower clause. The word "volition" is perhaps not an ideal label to carry such a broad sense of disposition, but it seems possible to use it in this way because a salient meaning of the noun *will,* which is central to the meaning of the noun *volition* in ordinary usage, may be defined using the notion of disposition as follows (cf. Rudanko (1989: 24)):

> a mental power or a disposition or the sum of mental powers or dispositions manifested in such operations and functions as wishing, choosing, desiring, intending. (Webster's Third 1976, sense 4a)

The disposition expressed by the higher verb may be either positive (class 1.1) or negative (class 1.2). Verbs of positive volition involve a positive disposition toward the content of S_2 in that such verbs convey in part that the entity referred to by NP_1 wants, or is at least willing or prepared, to do (or to be) whatever is expressed by the lower clause. For their part, verbs of negative volition involve a negative disposition toward the content of S_2 in that such verbs convey in part that the entity referred to by NP_1 is in some way unwilling or reluctant to do (or to be) whatever is expressed by the lower clause.

The relationship of entailment may sometimes be used to shed light on senses of verbs in the taxonomy. For instance, it may be suggested that intention is a component of effort, so that a sentence like *John sought to calm them,* with *seek* from class 1.1.3, entails the corresponding sentence with *intend,* the prototypical verb of intention, as in *John intended to calm them.* Thus ??*John sought to calm them but he did not intend to calm them* is odd. It may be pointed out (cf. Rudanko 1989: 26 f.) that such entailments do not always work, since *I intend to pay my taxes* does not necessarily entail *I want to pay my taxes.* Consequently, the notion of volition should be understood in a broad sense (cf. also Davidson's [1980] 1985: 101) very broad sense of *want*). Thus it should not be seen as a concept that is necessarily lexicalized by a particular verb in English, but as an identifiable component in the meanings of many verbs.

It may be added that the adjectives *willing* and *prepared* have senses that work better in expressing the volitional ingredient of *intend.* The former has the sense 'disposed to consent or comply', 'disposed to do what is required' (OED, part of the definition of sense 2 of *willing*), and the latter, combined with the copula, has the sense 'to be mentally ready, inclined, disposed' (OED, part of the definition of the sense of *be prepared,* under sense 1e of the verb *prepare*). (The adjectives have other senses in addition to these: for instance, *willing* may be "used of someone who does something fairly enthusiastically ..." (Collins-Cobuild, from sense 2 of the word). Thus *I intend to pay my taxes* does seem to entail *I am willing to pay my taxes* (cf. also Miller and Johnson-Laird 1976: 509) and *I am prepared to pay my taxes,* provided that it is undertood that *willing* and *prepared* express the senses identified.

Comparing the present system with Sag and Pollard's (1991), there is clearly a considerable degree of similarity between them. The class of verbs of desideration of the present schema corresponds closely to Sag and Pollard's verbs of the WANT/EXPECT type, except of course that verbs of expectation or anticipation, most prominently the verb *expect* itself, have been classed separately from verbs of desideration in the present system. (Introducing a class of verbs of desideration and anticipation would make the correspondence even more perfect, but the other benefits of such a move are not obvious, especially in view of the dichotomous title of Sag and Pollard's class.) As far as the verbs of intention and those of effort of the present classification are concerned, they bear a remarkably close correspondence to Sag and Pollard's class of verbs of the COMMITMENT type. The correspondence seems to go so deep that it may be possible to regard the intention and effort classes of the present schema (and the subclasses in the case of verbs of intention) as a way of giving further content and specificity to the notion of commitment that is relevant here. Further, in the spirit of Sag and Pollard, one might coin more specific terms in the present schema, for instance "intender," to characterize roles of participants to states of affairs denoted by lower clauses. Overall, there is considerable correspondence between the two schemas of classification, as regards the interrelated tasks both of conceptualizing classes and of assigning verbs to them.

From another point of view, we might here take note of Christian Mair's discussion of the semantics of *V + to-inf* construals. He suggests that matrix verbs in such construals are typically "forward-looking": "the action or state referred to in the infinitival clause follows the action or state referred to in the matrix clause in time" (Mair 1990: 102). (A verb like *like* is forward-looking in the conditional *would like to,* as Mair observes.) Or at least it is the case that "infinitival complements do not usually refer to states of affairs anterior to their matrix clauses" (Mair 1990: 103). As far as the present taxonomy is concerned, it seems that verbs of intention and effort are intrinsically forward-looking, while those of desideration that are not intrinsically so become forward-looking when combined with *would.* It is also scarcely a coincidence that the exceptions to his generalization that Mair (1990: 103) notes, including *claim* and *profess,* are typically from outside the class of volitional verbs.

The system given above is essentially that of Rudanko (1989), but it incorporates one or two minor adjustments. Provision is made for verbs flexible enough to be either +volitional or -volitional. Given the existence of +volitional verbs and of -volitional verbs, it is perhaps not surprising that a class straddling the divide should exist. It is not always easy to decide which verbs should belong to it, for metaphorical extensions should be allowed even for verbs that are +volitional. Thus the verb *refuse* has not been included in the class of +/-volitional verbs even though alongside of the 'ordinary' or straightforwardly volitional use of the verb, as in (3a), sentences such as (3b) may be found:

(3) a. He refused to accept the offer.
b. This morning my car refused to start.

As far as (3b) is concerned, there is an intuitive feeling that the subject *my car* undergoes some reinterpretation on account of the +volitional verb *refuse.* For this reason the verb has been kept in the class of volitional verbs only.

However, in the case of verbs such as *assist* and *help*, alongside of (4a), we may find sentences such as (4b).

(4) a. He has undoubtedly helped to fortify its already substantial reputation for fairness and efficiency. LOB G53 2-3
b. ... this friendship must have helped to acclimatize Clifford's mind to aspects of experience towards which he was by nature prone, ... LOB G16 65-67

The verb may be paraphrased as 'play a part in' (Ian Gurney, personal communication) or 'to contribute in part' in both (4a) and (4b), but the notion of a conscious or deliberate effort seems appropriate only for (4a). Even though the subject of (4b) is -human, there is little or no sense of reinterpretation of this subject in more 'personified' terms.

A dichotomy of a somewhat similar nature may be observed with *fail*. We may compare (5a) and (5b):

(5) a. It is possible that at the age of twenty I might have failed to answer some of the questions in an examination paper set for boys of sixteen in a musical academy; ... LOB G28 171-173
b. ... on the last day of the year he was angry because they had failed to turn up. LOB G18 91-92

A number of dictionary treatments of *fail* are sensitive to this dichotomy, in that they distinguish two senses of the verb that express the difference. Thus in Collins-Cobuild there are the following two senses, among others:

1 If someone **fails** to achieve something that they were trying to achieve, ... they do not succeed in doing it.
5 If someone or something **fails** to do a particular thing that they should have done, they do not do it.

The basic distinction is thus between trying to do something and not succeeding, that is, failing in spite of an effort (sense 1), and not doing something, with no necessary implication of an effort (sense 5). In the latter sense *fail* can easily take a -animate subject and the meaning of the construction comes fairly close to that of negation with *not*. As Poutsma (1929: 902) puts it, "when followed by an infinitive(-

clause) the verb [*fail*, JR] often serves no other purpose than that of negativing the following verb." We might compare (6a) and (6b):

(6) a. The remark failed to upset him.
b. The remark did not upset him.

However, (6a) and (6b) are perhaps not entirely equivalent, for in the case of the *fail* construal there is more of a sense of expectation, or more precisely, a sense of a non-fulfillment of an expectation, than in the case of the *not* construction. Of course, this sense is not felt by the entity designated by NP_1 but by some unnamed person that is salient in the context. The difference in question between *fail* and the *not* construction can be brought out if the expectation is negated. Thus *The remark was not expected to upset him and (indeed) it did not upset him* seems more likely than *?The remark was not expected to upset him and (indeed) it failed to upset him.*

The two senses are clearly different in principle, but in actual texts they are not always easy to keep apart. Even in the case of (5a-b), it is only the context that suggests the 'not succeed' sense in (5a) and the 'not doing (in spite of expectation)' sense in (5b), and it is not impossible to imagine these interpretations in their sentences being reversed, especially in different contexts.

Turning now to the numerical figures relating to the incidence of the different verbs in the G and K parts of the LOB corpus, we must recognize that due allowance should be made for certain problems that are encountered when instances are counted (cf. note 1), and indeed when they are interpreted, as in the case of *fail*. Even with such allowance made, the numerical figures given in the taxonomy in (2) above demonstrate fairly clearly that verbs of volition preponderate in the two subcorpora considered, especially in terms of the tokens of verbs encountered. The most common verbs in the pattern are *try*, *want*, and *like*, and these are from the classes of effort and of desideration, respectively. Admittedly, *fail* is a commonly occurring verb and only some of the instances of this verb in the corpus are volitional. However, virtually all other commonly occurring verbs are unambiguously volitional.

Within the three major classes of volitional verbs we may also take note of some differences in the frequencies of verbs. Thus in the class of verbs of desideration, *want* is the most common, by a big margin, with *like*, *wish*, and *hope* next in order. In the class of verbs of intention, no verb stands out in the same way, and *decide* and *intend* seem to be the most frequently occurring verbs. As far as the class of verbs of effort is concerned, *try* is the most common by a huge margin, with *seek*, *manage*, and *attempt* coming next, but a long way behind.

Turning now to the historical part of this article, the diachronic material is from the CONCE, the Corpus of Nineteenth Century English. This is a corpus being produced as a result of a project on diachrony and variation in English that is headed by Merja Kytö, of the University of Uppsala, and the present author. The corpus consists of five genres, those of fiction, history, science, drama, and letters, and each genre is made up of some nine or ten texts. The nineteenth century is divided into three parts chronologically, the early years, the middle years and the late years, and there are three or four texts, generally some 10,000 words each, from each period. The texts are all British English, and in order to minimize effects of regional variation even further, texts from Scotland and Wales were excluded. On the other hand, both male and female authors are included, in roughly equal numbers.

For the purposes of this investigation, the three genres of fiction, history, and science were consulted. Subject control construals were identified in this material of some 270,000 words. A study of the material revealed that most matrix verbs in nineteenth century English are still found in the same construal today or at least are still conceivable in the same construal. Further, it was found that in most cases the meanings of matrix verbs have remained fairly constant. Examples of such verbs are given in (7a-c).[2]

(7) a. Unable to support the slow withering of her hopes, she suddenly formed a plan, resolving to terminate at once the period of misery, and to bring to an happy conclusion the late disastrous events. Fiction, Mary Shelley, *The Last Man* (London: Henry Colburn, 1826), volume I, 277.
b. Having secured every thing at home, he determined to meet the youthful conqueror at Rhodes. History, Henry Milman, *The History of the Jews* (London: John Murray, 1829), volume II, 103.
c. In a private letter he ventured to give utterance to an amiable wish which he probably took good care not to whisper in the courtly circle: ... History, Thomas Babington Macaulay, *The History of England from the Accession of James the Second* (London: Longman, Brown, Green, and Longmans, 1855), volume IV, 269.

However, the investigator of historical material also needs to be sensitive to changes in usage. Historical change may be of many kinds; here change that is either syntactic or semantic in nature deserves to be mentioned. Even though nineteenth century English does not reach very far back into the history of English, there is at least one example of syntactic change even in the present limited material. This concerns the verb *take*. The following construal is found in the CONCE corpus:

(8) ... for we often observe great differences in the natural tendencies of our domestic animals; one cat, for instance, taking to catch rats, another mice; ... Science, Charles Darwin, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (London: John Murray, 1859), 91

In present-day English *take* in this sentence would be combined with the *to -ing* construction rather than with the infinitive, even though this would result in two *-ing* forms in close proximity to each other. Whether such proximity of two *-ing* forms was a factor favoring the use of the *to* infinitive in nineteenth century English, in preference to the *to -ing* construction, is a question that invites further investigation on the basis of a larger corpus.

As for semantic change, it may manifest itself in many ways. For instance, a verb may occur in the same subject control construction in both current English and in nineteenth century English, but the sense of the verb in question may be one that is less prominent in present-day English. We might consider the verb *pretend* as an example:

(9) a. And then she would give it up as a bad job, and put the account-book away, after pretending to crush the lion with it. Fiction, Charles Dickens, *The Personal History of David Copperfield* (London: Bradbury & Evans, 1850), 437

b. Great events spring out of small causes; so I will not pretend to say what induced Mrs. Jamieson to alter her determination of excluding the Cranford ladies, and send notes of invitation all round for a small party, on the following Tuesday. Fiction, Elizabeth Gaskell, *Cranford* (London: Chapman & Hall, 1853), 145

c. Noblemen who at first had attended the parish churches, no longer appeared there. The publication of the Bull precipitated the reaction, and thenceforward no one could pretend to be a sincere Catholic without at the same time declaring himself a traitor. History, James Froude, *History of England from the Fall of Wolsey to the Death of Elizabeth*, (London: Longmans, Green, and Co. 1866), volume X, 110.

d. You compliment me upon being what I have always acknowledged myself — an unscrupulous man, counting the creeds and codes for which other men profess reverence, by which they pretend to rule their lives, as the convenient formulae of judicious hypocrites ... Fiction, Mary Braddon, *Hostages to Fortune* (London: John Maxwell and Co., 1875), volume III, 92.

In (9a) the verb has the sense of 'to feign *to be* or *do* something' (OED, part of the definition of sense 3.b), which in the formulation of the OED is "a leading modern sense." On the other hand, in sentences (9b-d) the sense of the verb appears to be what in the OED is glossed as 'to aspire to; to take upon one, to undertake; to venture, presume; to attempt, endeavour, try' (OED, sense 9). The sense of the verb in (9b-d) is not impossible or unknown in modern English, but it may be felt to be slightly archaic. It is very rare in the LOB sample and hardly a leading sense today.

Another question that seems to be more acute in the study of diachronic material than in the case of present-day English is the demarcation of complement and adverbial (adjunct) sentences. This question, of course, certainly likewise arises in the study of present-day English, but in the investigation of diachronic material it is often felt even more keenly because it is less possible to employ syntactic tests to resolve the issue. In the present sample, the question of demarcation arises for instance in the case of the verbs *blush*, *grieve*, and *shudder* in (10a-b):

(10) a. The hero-seamen of Elizabeth had not blushed to make gain out of kidnapping negroes and selling them into slavery. History, John R. Green, *The English People* (London: Macmillan, 1880), volume IV, 276-277.
b. "Dear one, I have grieved to be away, but I could not leave poor Mrs. Saville." Fiction, Charlotte M. Yonge, *Hopes and Fears or, Scenes from the Life of a Spinster* (London: John Parker and Son, 1860), volume II, 54.
c. "I should shudder to think of any doubts in poor little Bertha's mind, ..." Fiction, Charlotte M. Yonge, *Hopes and Fears or, Scenes from the Life of a Spinster* (London: John Parker and Son, 1860), volume II, 62.

In such cases a fairly permissive attitude will be adopted here and instances of the type illustrated will be included, even though it is recognized they are perhaps somewhat borderline.

Turning now to the task of providing a taxonomy of matrix verbs in the nineteenth century material, it seems possible to utilize the notion of volition and the concepts of desideration, intention, and effort for its analysis. Here is the proposed taxonomy:

(11) (1) Verb$_1$ is +volitional
(1.1) Verb$_1$ expresses positive volition
(1.1.1) Verb$_1$ expresses desideration, with the approximate paraphrase 'to want' or 'to want intensely':
care (5), *delight* (2), *desire* (11), *hanker* (1), *hope* (20), *incline* (1), *like* (27), *long* (2), *love* (3), *prefer* (1), *rejoice* (1), *wait* (5), *want* (37), *wish* (34).
(1.1.2) Verb$_1$ expresses intention;
(1.1.2.1) Verb$_1$ implies that NP$_1$ communicates the intention:
agree (3), *consent* (13), *engage* (3), *offer* (6), *promise* (20), *propose* (6), *swear* (2), *threaten* (3), *undertake* (4), *volunteer* (1); *beg* (4).
(1.1.2.2) Verb$_1$ expresses a decision or an intention that is not necessarily communicated:
choose (8), *decide* (2), *determine* (20), *resolve* (16); *intend* (11), *mean* (23).
(1.1.3) Verb$_1$ expresses effort on the part of NP$_1$:
attempt (24), *conspire* (3), *contrive* (3), *endeavor* (28), *hasten* (6), *labor* (6), *learn* (10), *prepare* (3), *seek* (8), *strive* (3), *try* (44).

(1.1.4) Others:
(1.1.4.1.) Verbs of venturing:
  dare (7), *presume* (2), *venture* (11).
(1.1.4.2) Verbs of stooping:
  condescend (2), *deign* (1).
(1.1.4.3) Others:
  proceed (11); *take* (2).
(1.2) Verb$_1$ expresses negative volition:
  blush (1), *decline* (1), *fear* (3), *forbear* (2), *hesitate* (3), *refuse* (31), *regret* (1), *scruple* (1), *shudder* (1).
(1.3) Others:
  afford (4); *(not) bear* (3); *forget* (5).
(2) Verb$_1$ is either +volitional or -volitional:
  help (4); *fail* (17), *neglect* (2), *omit* (3); *pretend* (11).
(3) Verb$_1$ is -volitional
(3.1) Verb$_1$ has the approximate meaning of 'assert':
  profess (3), *purport* (1).
(3.2) Others:
  avail (1); *deserve* (7); *feign* (1); *serve* (9), *suffice* (5).

It is clear enough from the taxonomy that in the infinitival subject control pattern under consideration verbs of volition predominate in nineteenth century English, as they do in present-day English. Further, it seems possible to use the three concepts of desideration, intention and effort as a backbone of the taxonomy even for nineteenth century usage. As far as frequencies of individual verbs within the three classes are concerned, there are both similarities and some notable differences. Overall, *try* is the most commonly occurring verb, as it was in the LOB sample above, though its incidence seems less high in the diachronic material, both absolutely and proportionately, than in the LOB sample. However, to get a more nuanced view of the incidence of verbs in the taxonomy, we should examine each of its three main classes individually. In the class of the verbs of desideration, the "top four" are *want*, *wish*, *like*, and *hope*, as in the LOB sample, but in this case *want* and *wish* are about equally common. In the class we also notice the presence of the verbs *delight*, *hanker*, and *incline*. These are rare but did not come up in the LOB sample at all.

As far as the class of verbs of intention is concerned, the "front runners" of the LOB sample, *decide* and *intend*, are rather less prominent in the nineteenth century sample. Verbs that are more frequent include *mean*, *promise*, *determine*, and *resolve*. The last two, in particular, are clearly commonly used locutions to express the forming of a decision in nineteenth century English. Of course, these two verbs live on today, but the present investigation substantiates the impression that they have become much less common in comparison with *decide*, which is very rare in the diachronic material. (The two examples of *decide* are from near the end of the century.) The nineteenth century sample also brought to light the verb *engage,* which did not come up in the LOB sample.

As for verbs of effort, it will be recalled that in the LOB sample the first four are *try, seek, manage,* and *attempt,* in this order. The first three in the nineteenth century sample are *try, endeavor,* and *attempt,* in this order, and the fourth verb *learn* comes some way behind. The most notable difference here probably concerns the frequency of *endeavor*: it occurs very commonly in nineteenth century English but much less so in present-day English.

Overall, the present investigation substantiates the proposal that verbs of volition, as conceived on the basis of the three concepts of desideration, intention and effort, are the most frequently occurring triggers of subject controlled infinitival control constructions both in present-day British English and in nineteenth century British English. This contribution also throws light on the incidence of different individual control verbs in these varieties of English and on changes that have occurred over the past two hundred years. It obviously invites further work on subject control construals in larger corpora of British English, making it possible to devote attention for instance to differences of genre. Beyond British English, the present study invites work on corresponding control construals in American English over the past two centuries.

NOTES

*The author is grateful to Ian Gurney, of the University of Tampere, for valuable comments on an earlier version of this contribution. Mark Kaunisto, likewise of the University of Tampere, deserves thanks for his help, and especially for calculating numerical figures regarding the incidence of matrix verbs in the corpora. All remaining faults are the author's.

[1] Counting such tokens is straightforward, for the most part, but does involve some decisions that are slightly less obvious. For instance, these include decisions on instances where the lower verb has been elided, as in (i), and on the treatment of coordination, as (ii):

(i) They admit they probably could not operate the engine any better themselves, while claiming as credit to themselves that at least they are not even pretending to. LOB G14 19-22

(ii) Thatchers, hauliers, carpenters were all trying, and of course failing, to get an acre or two, sometimes to grow wheat and animal feed, in some cases to pasture a horse, or for a cow and pigs. LOB G11 74-77

Such instances of matrix verbs have been included in the investigation.

[2] There is as yet no manual of the texts of the Corpus of Nineteenth Century English, and consequently, full bibliographical information will be given in the text.

REFERENCES

Collins-Cobuild = *Collins Cobuild English Dictionary.* 1993. Ed.-in-chief John Sinclair. London: HarperCollins.

Davidson, Donald. [1980] 1985. *Essays on Actions and Events.* Oxford: Clarendon Press.

Fanego, Teresa. 1996. "The Development of Gerunds as Objects of Subject-Control Verbs in English (1400-1760)." *Diachronica* XIII, 29-62.

LOB = *The Lancaster-Oslo/Bergen Corpus of British English, for Use with Digital Computers.* 1978. By S. Johansson in collaboration with G. Leech and H. Goodluck. Department of English, University of Oslo.

Mair, Christian. 1990. *Infinitival Complement Clauses in English.* Cambridge: Cambridge University Press.

Miller, George and Philip Johnson-Laird. 1976. *Language and Perception.* Cambridge: Cambridge University Press.

OED = *The Oxford English Dictionary.* 2nd ed. 1989. Prepared by J. Simpson and E. Weiner. Oxford: Clarendon Press.

Poutsma, H. 1929. *A Grammar of Late Modern English. Part I. The Sentence. Second Half. The Composite Sentence.* 2nd ed. Groningen: P. Noordhoff.

Radford, Andrew. 1981. *Transformational Syntax.* Cambridge: Cambridge University Press.

Rudanko, Juhani. 1989. *Complementation and Case Grammar: A Syntactic and Semantic Study of Selected Patterns of Complementation in Present-Day English.* Albany, N.Y.: State University of New York Press.

Sag, Ivan A. and Carl Pollard. 1991. "An Integrated Theory of Complement Control." *Language* 67: 63-113.

Visser, F. Th. 1969. *An Historical Syntax of the English Language. Part Three, First Half. Syntactical Units with Two Verbs.* Leiden: E. J. Brill.

Webster's Third New International Dictionary of the English Language. Unabridged. 1976. Springfield: Merriam.

THE PSYCHOLOGICAL REALITY OF THE SMALL CLAUSE

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1. Introduction[1]

In 1975, Edwin Williams introduced the term Small Clause to label clauses which contain verbs that end in *-ing* (Williams, 1975), as in:

(1) The lady *riding the horse* has blonde hair.

Since that time, Small Clauses (SCs) have become a topic of much debate in syntactic circles. Though taken up by only a handful of linguists, SCs have proven both controversial and interesting; enough so to even warrant a "Small Clause Festival" (Tokyo, 1991).

Small Clauses today have taken on a new, albeit related meaning to the one introduced by Williams. SCs are now thought of as entities which take the form NP XP, where XP= NP, VP, PP, or AP, which expresses the subject-predicate relationship found in other clauses (Williams, 1983; Safir, 1983). The following are examples of each of these:

(2) (a) I consider John silly. (NP AP)
(b) I saw John run. (NP VP)
(c) I found John in the garden. (NP PP)
(d) I consider John my best friend. (NP NP)

In this light, a clause is not restricted to only having a VP as the predicate, but NPs, APs, and PPs can be predicates as well.

Many researchers in the field of syntax have battled with the problem of the

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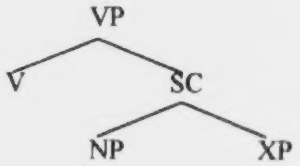
[1] This paper is an abbreviated form of my Bachelor of Arts Honors Thesis. I would like to thank all of the members of the Discourse Research Group at the University of Alberta for assisting me and providing very helpful feedback and encouragement. I would particularly like to thank Dr. G.D. Prideaux and D. Elliot for their greatly appreciated help.

Small Clause. Some (e.g., Radford, 1988; Safir, 1983) have argued that the SC is a constituent (e.g., I $[_{\text{VP}}$ consider $[_{\text{SC}}$ John silly]]), while others (e.g., Williams, 1983) claim that the SC is not a constituent (e.g., I $[_{\text{VP}}$ $[_{\text{V}}$ consider]$[_{\text{NP}}$ John]$[_{\text{AP}}$ silly]]. These hypotheses are called the Constituent Hypothesis (or Small Clause Hypothesis) and the Non-Constituent Hypothesis, respectively.

The Constituent Hypothesis (CH) states that syntactic strings of the form NP XP form their own constituents in a sentence. The following tree diagram represents this constituent structure:

(5)



Radford (1988) offers several explanations for a structure of this kind. One of these is that since the NP of a SC can be replaced by "an appropriate *Subject Expression*" (p. 325), the SCs manifest a subject-predicate structure. The following is an example of this:

(6) I consider [*it* time to leave].

Further arguments for the clausal status of SCs provided by Radford include the fact that they cannot take overt complementizers, and they "cannot contain an inverted Auxiliary in pre-subject position, unlike their finite Clause counterparts" (p. 327). The following are examples of how SCs cannot take overt complementizers (7), and how SCs cannot contain the inverted Aux in pre-subject position (8):

(7) (a) *It is [that Bob in the Army] that I can't imagine.
    (b) It is [Bob in the Army] that I can't imagine.

(8) (a) *Let [*be* there light].
    (b) Let [there *be* light].

Together these arguments provide evidence for the fact that the C(complementizer) category cannot be found in these structures, and hence, SCs are not S-bar constituents (Radford, 1988).

Tests of clausal status (e.g. cleft, pseudo-cleft, topicalization, and right node raising) will show some of the supporting arguments for the CH:

(9) Cleft
  (a) It is [Bob in the army] that I can't imagine.
  (b) It is [Cathy out of the company] that Joe wants.

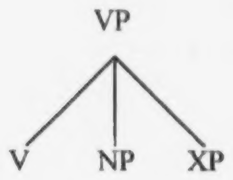
(10) Pseudo-cleft
  (a) What I can't imagine is [Bob in the army].
  (b) What Joe wants is [Cathy out of the company].

(11) Topicalization
  (a) [Bob in the army], I can't imagine.
  (b) [Cathy out of the company], Joe wants.

(12) Right node raising
  (a) I can't imagine, but Frank can imagine, [Bob in the army].
  (b) Joe wants, and Brad also wants,[Cathy out of the company].

In the Non-Constituent Hypothesis (NCH) "the [NP] and [XP] are assumed to play distinct grammatical functions" (Nakajima, 1991, p. 4). The claim here is that these units of the SC behave more like ditransitive verb complements than clausal constituents. Proponents of this hypothesis (Williams, 1983; Napoli, 1989) maintain that the structure of the SC is as follows:

(13)



Simple tests of causal status (e.g. cleft, pseudo-cleft, and topicalization) can also provide evidence for the NCH. Note that the sentences which are not marked with the "*" are acceptable and suggest the structure of (13) by virtue of the fact that the clausal status does not need to be maintained in order for the sentences to be considered acceptable. One cannot extract NPs from clauses, but when one extracts the NP from the bracketed structures below, the sentence is acceptable. Therefore they must not be clauses:

(14) Cleft
  (a) *It is [math a real drag] that Tom finds.
  (a') It is math that Tom finds a real drag.
  (b) *It is [Mary extremely intelligent] that John believes.
  (b') It is Mary that John believes extremely intelligent.

(15) Pseudo-cleft
(a) *What Tom finds is [math a real drag].
(a') What Tom finds a real drag is math
(b) *What John believes is [Mary extremely intelligent].
(b') Who John believes extremely intelligent is Mary.

(16) Topicalization
(a) *[Math a real drag], Tom finds.
(a') Math Tom finds a real drag.
(b) *[Mary extremely intelligent], John believes.
(b') Mary John believes extremely intelligent.

Thus, we find arguments both for and against the SC as a constituent.

Further to the debate as to whether or not SCs form constituents is the notion that some SCs may have stage-level predicates (stage-level SCs), and some may have individual-level predicates (individual-level SCs). "Stage-level predicates denote temporary states and transitory activities, while individual-level predicates denote more or less permanent states" (Ichikawa, 1995, p. 29). The following are examples of sentences from this study which are considered to contain stage-level predicates:

(17) (a) Joe wants Cathy out of the company.
(b) Sue doesn't need Chris on the team.

The individual-level predicates, on the other hand, tend to show permanence, and they are typically NP NP or NP AP structures. Examples of each of these are represented in (18) below:

(18) (a) I consider Trevor a friend.
(b) Harry ate the fish raw.

Ichikawa mentioned that individual-level SCs may not always form constituents, but also said that in reality they do. This is important for this study, in that, as we shall see below, both individual-level SCs and stage-level SCs emerge in the data as constituents.

It seems as though the Small Clause issue cannot be resolved using formal syntactic analysis alone. There exists evidence supporting each side of the controversy. Since the constituency of the SC is the central issue here, the task then is to explore this constituency in terms of empirical evidence. Do naive native speakers really treat SCs as units or not? My initial hypothesis was that participants would not treat them as constituents. Later, after the stimuli were constructed, I realized that the results would most likely favor the CH, simply because the paraphrases corresponding to that hypothesis are generally better sounding and closer paraphrases than the NCH paraphrases.

2. Procedure

In order to investigate the relationship between the two opposing hypotheses, it was necessary, first of all, to develop a means of testing them empirically. Paraphrases of sentences containing SCs (the target sentences in my study) were constructed in such a way as to correspond to the two hypotheses, the CH and NCH. This permitted the construction of a stimulus set such that naive participants could make judgments about the best paraphrases. The paraphrases were then subjected to rank-ordering by participants.

As mentioned above, Small Clauses are of four general types (NP NP, NP PP, NP AP, and NP VP). In this study only the first three of those (i.e., excluding NP VP) were taken up. This was done because it was difficult to construct paraphrases for the NP VP constructions using the same operational definition that was used for the other three.

For each target sentence, four paraphrases were constructed. Participants were asked to read the target sentence, then all four of these paraphrases, and then to rank-order the paraphrases in terms of their closeness in meaning to the original target sentence. These orderings were to then be indicated on a separate scoring sheet. As per the instructions, participants were to use the following strategy to come up with their orderings: They were first to choose the sentence that is closest in meaning to the target sentence, and place a 1 beside the letter corresponding to that sentence. Next, they were to choose the sentence that is farthest in meaning from the target sentence, and place a 4 beside the letter corresponding to that sentence. Then they were to rank-order the remaining two sentences based on their judgments of which is closest in meaning and which is farthest in meaning.

The stimuli were presented on a computer screen, using Power Point. The target sentence and the four paraphrases were shown on the screen for 45 seconds. While this does not at first seem like much time for this task, pilot testing revealed that it was quite adequate, and all of the participants had enough time fully to complete the task.

Once the method was developed, it was then necessary to create the stimuli. It was decided that four paraphrases would be used, two representing the CH and two representing the NCH. To operationalize the hypotheses, paraphrases were constructed that were characteristic of the hypotheses they represented.

For paraphrases of the CH, the clausal structure of the SC is maintained in the paraphrase. This can be seen in the following sentence with a SC of the type NP PP:

(19) Sue doesn't need Chris on the team.

According to the Constituent Hypothesis, in this clause *Chris* is the subject and *on the team* is the predicate of that subject. It was necessary then, in the CH paraphrases to keep this relationship. This is illustrated in the following paraphrases:

(20) (a) Sue doesn't need Chris to be on the team.
(b) For Chris to be on the team, Sue doesn't need.

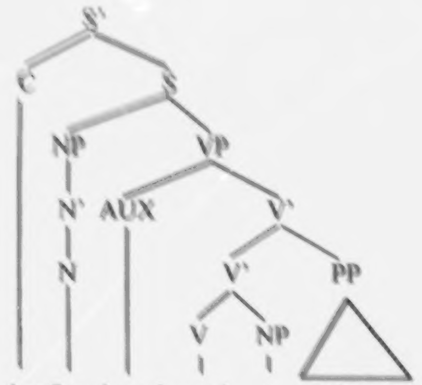
In each case the NP *Chris* is the subject (be it that of the main clause or of the subordinate clause) and *on the team* is the predicate of that subject. In this way, the clausal structure representative of the SCs is maintained, and the paraphrases are representative of the CH.

To make paraphrases representative of the NCH, the opposite was done. The paraphrases were constructed such that the NP and the XP of the Small Clauses were not in the subject-predicate relationship. The following examples represent the NCH paraphrases, which correspond to example (19) above:

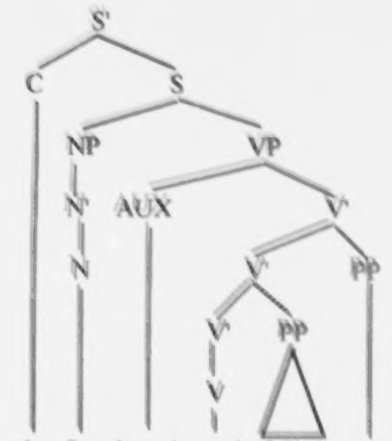
(21) (a) It is Chris that Sue doesn't need on the team.
(b) To be on the team is what Sue doesn't need of Chris.

In (a) of the examples, *Chris* is the subject of the sentence, but *on the team* is within the predicate of the clausal subject *Sue*. In (b), *Chris* is within the predicate, again, of *Sue*, and the infinitive containing *on the team* is the subject of the main clause. The clausal structure of the SCs is not maintained. This can be seen here in the tree structures representing the embedded clauses:

(22)



(a) that Sue doesn't need *t* on the team. (*t* = Chris)



(b) what Sue doesn't need of Chris *t* (*t* = on the team)

In total there were 21 sets of sentences and paraphrases. Of those 21, only nine were sentences containing SCs; three were of the type NP NP, three were NP PP, and three were NP AP. For each target sentence there were four paraphrases, two representative of the CH and two representative of the NCH.

In addition to the 9 target sets, there were 12 distractor sets which were distributed among the test stimuli, with two at the beginning, one in between each set of target sentences, and two at the end. Feedback from the participants showed that this was a useful strategy, as some said that it took a couple of sets to become familiar and comfortable with the task. The use of the distractors was necessary to keep participants from discovering a pattern in the stimuli.

The participants for this study were volunteers consisting of 20 males and 20 females. All participants were native-speakers of English and ranged in age from 18 to 39 years. Participants were told that they were participating in a study involving paraphrases, but they were not told that SCs specifically were being studied. As the results will show, there was no apparent gender effect.

3. Results

The results obtained from the study are tabulated in Table 1. The numbers under the *C* column correspond to the number of paraphrases representing the CH that were chosen as "closest in meaning (i.e., #1) to the target sentence." The numbers under the *N* column correspond to the number of paraphrases representing the NCH that were chosen as "closest in meaning to the target sentence." There are three superordinate columns, each representing one of the three SCs taken up in this study. Even a quick glance at the data will show that the results are overwhelmingly in favor of the CH.

Table 1. Number of First Choices Made by Participants

	NP	AP	NP	NP	NP	PP		NP	AP	NP	NP	NP	PP
Fem	C	N	C	N	C	N	Males	C	N	C	N	C	N
1	3	0	3	0	3	0	1	3	0	3	0	2	1
2	3	0	3	0	3	0	2	2	1	2	1	3	0
3	2	1	3	0	3	0	3	3	0	2	1	3	0
4	3	0	3	0	3	0	4	2	1	2	1	3	0
5	3	0	3	0	3	0	5	3	0	3	0	3	0
6	3	0	3	0	3	0	6	2	1	3	0	3	0
7	3	0	3	0	3	0	7	3	0	3	0	3	0
8	3	0	3	0	3	0	8	3	0	3	0	3	0
9	3	0	3	0	3	0	9	2	1	3	0	3	0
10	2	1	2	1	3	0	10	3	0	3	0	3	0
11	2	1	3	0	3	0	11	3	0	3	0	3	0
12	3	0	3	0	3	0	12	3	0	3	0	3	0
13	3	0	3	0	3	0	13	3	0	3	0	3	0
14	2	1	2	1	2	1	14	2	1	3	0	3	0
15	3	0	3	0	2	1	15	3	0	3	0	3	0
16	3	0	3	0	3	0	16	2	1	1	2	3	0
17	2	1	3	0	3	0	17	2	1	3	0	3	0
18	3	0	3	0	3	0	18	1	2	1	2	2	1
19	3	0	3	0	3	0	19	2	1	1	2	3	0
20	3	0	3	0	3	0	20	3	0	3	0	3	0

To determine whether males and females were behaving differently, *t*-tests for independent samples were carried out on each of the following types: NP NP, NP AP, NP PP. That is, a *t*-test for independent samples was carried out comparing the NP NP data between males and females, as well as for the other two conditions. The results from that analysis are represented here in Table 2:

Table 2. *t*-test Results (M vs. F)

Structures	***t* (38)**	**significance**
NP AP	1.486	$p<0.1418$
NP NP	1.1991	$p<0.0605$
NP PP	0	ns

Because there was no significant gender difference in the data, it was then possible to pool the data and run a *t*-test for correlated samples for each of the different SC types. The results of those tests are as follows:

Table 3. *t*-test Results

Structures	***t* (1,39)**	**probability**
NP AP	13.175	0.00001
NP NP	12.943	0.00001
NP PP	29.143	0.00001

What these results tell us is that there is a very strong effect in favor of the CH.

A second analysis was done with the data from this experiment to see if there was any validity to the claim that some SCs have stage-level predicates while others have individual-level predicates (cf. section 1) (Ichikawa, 1995). Using the criteria set forth in Ichikawa's paper, it was found that all of the NP PP small clauses in this study were of the stage-level type, and the NP NP and NP AP small clauses were of the individual-level type. It was decided that another set of *t*-tests for correlated samples would be performed to compare the NP NP and NP AP (individual-level) data with the NP PP (stage-level) data. Using the pooled male and female data for the analysis, the following results were obtained:

Table 4. *t*-values for Individual-level SCs vs. Stage-level SCs

Comparisons	***t* (1,39)**	**probability**
NP NP vs. NP AP	-1.275	0.2075
NP NP vs. NP PP	-1.862	0.0668
NP AP vs. NP PP	-3.139	0.0035

As can be seen, the control condition where the NP NP SCs were tested against the NP AP SCs (i.e., individual- vs. individual-level), there is no significant difference between the number of first choices made. In the second condition, NP NP vs. NP PP, the results are approaching significance, which would suggest at least partial support for the distinction. That is, given a larger sample size, this result might achieve significance. The third condition however, is quite significant. A *t*-score of -3.139 would indicate that a larger number of first choices were made for SCs representing the CH than for SCs representing the NCH in the NP PP condition than the NP AP condition. This would strongly support the notion that stage-level SCs form constituents whereas individual-level SCs may not (cf. section 1). These results support Ichikawa's (1995) groupings empirically in the sense that AP and NP predicates form the individual-level group and PP predicates form the stage-level group.

4. Conclusion

So then, do the results of my experiment support the original hypothesis that SCs were not constituents? The answer simply is no. The results overwhelmingly support the Constituent Hypothesis. That is, it was found that Small Clauses do exist as constituents, at least in so far as they are perceived by naive native speakers of English. It appears as though participants have an easier time with, and prefer sentences in which the subject-predicate relationship found in Small Clauses is preserved in paraphrases of those sentences. Some reasons why this might be so are presented in the following section covering potential confounds. But, one cannot look past the obvious possibility, however, that the CH is simply sounder than the NCH. As mentioned earlier, there are equally supportive formal arguments for both sides of the Small Clause debate, but now it appears as though the CH is winning, when assessed in empirical terms.

The evidence provided by the individual-level vs. the stage-level analysis throws a small wrench into the idea that the CH is valid for all SCs. It appears that only some of the SCs are in fact constituents; namely the NP PP or stage-level SCs. However, one cannot discount the data obtained in this study which provides clear support for the CH.

Probably the largest potential confound is that this experiment might not have tested what it was designed to test. It may only be testing participants' abilities to understand paraphrases, but not testing which of the SC hypotheses are stronger or more likely. Simply operationalizing the Small Clause hypotheses into paraphrases might not ensure that they adequately represent those hypotheses.

One cannot say that this study provides complete support that the CH is correct. Certainly the individual-level/stage-level analysis demonstrates that, since one can only state that there is now experimental evidence supporting this theory. It should be noted that because this is the first known attempt to submit SCs to psycholinguistic analysis, there is no real basis with which to compare these results. This is important, in that one's own intuitions and interpretations of results may be subject to certain biases, which may taint the results.

It is important for theoretically posited linguistic structures and the theories underlying these structures to be tested empirically (i.e., from a psycholinguistic perspective) because these structures and theories in most cases constitute claims about mental processes and representations. Through the points of view of naive native speakers we can gain insight into the workings of the mind, not only as it relates to language, but to all aspects of human cognition. It is for this reason that this study was performed, that studies like this began to be performed, and studies like these will continue to be performed.

This study was an attempt to focus on a very specific theoretical issue and investigate it in detail. SCs were discussed from the perspective of a theoretical argument which seemed to have no clear answer. It was found that the side of the issue which favored the CH was supported, given the data obtained. This study and the subsequent discussion clearly demonstrate how a theory is of no scientific value without empirical data to either back it or refute it. This shows that there exists a definite need for clear and explicit formulation of theoretical claims which can then be tested empirically. It is impossible for science to advance without the theories being tested in a clear and objective manner.

REFERENCES

Hayashi, Ryojiro (1991). "On the Constituency of Small Clauses." In H. Nakajima and S. Tonoike (Eds.) *Topics in Small Clauses: Proceedings of the Tokyo Small Clause Festival,* pp. 11-25. Tokyo: Kurisio Publishers.

Ichikawa, Kazuhiro. (1995). "On Some Asymmetries in Small Clauses." *Dokkyo Working Papers in Linguistics, 10,* pp. 5-35.

Nakajima, Heizo and Tonoike, S. (eds.). (1991). *Topics in Small Clauses: Proceedings of the Tokyo Small Clause Festival.* Tokyo: Kurisio Publishers.

Napoli, Donna-Jo (1989). *Predication Theory: A Case Study for Indexing Theory.* Cambridge University Press, Cambridge.

Radford, Andrew. (1988). *Transformational Grammar: A First Course,* Cambridge University Press, Cambridge.

Safir, Kenneth. (1983). "On Small Clauses as Constituents." *Linguistic Inquiry, 14,* 730-735.

Williams, Edwin. (1975). "Small Clauses in English." In J. P. Kimball, (ed.), *Syntax and Semantics, 4,* 249-273. Academic Press, Orlando.

— 1983. "Against Small Clauses." *Linguistic Inquiry, 14,* 287-308.

DETERMINANTS OF RELATIVE CLAUSE HEADS IN ENGLISH

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1. Introduction

This study is an exploration of the syntactic, semantic, and discourse determinants of relative clause heads in English. A relative clause head is that element in the main clause which is related syntactically and semantically to a relative pronoun which occurs, either overtly or tacitly, within a relative clause (Grosu 1981). It has been widely argued that relative clause heads tend to be the grammatical subject of the relative clause (Keenan & Comrie 1977, 1979, Keenan & Hawkins 1987, Maxwell 1979, and Lehman 1986). However, the tendency to coindex relative pronouns with grammatical subjects is dependent upon certain semantic and discourse pressures, specifically, animacy and information status. The goal of this research, then, is to explore the manner in which these factors conspire to determine non-subject relative clause heads in English.

Much of the current research on relative clause heads is based on that of Keenan & Comrie (1977, 1979). Keenan & Comrie established that if a language has relative pronouns, it must have subject relative pronouns. They suggest that subject relative pronouns occur across languages more frequently than other types of relative pronouns because they are more *accessible*. That is, speakers find subject relative pronouns easier to process than direct or indirect object relative pronouns. Because they are easier to process, subject relative pronouns are acquired earlier than other relative pronouns. When presented with varying types of relative clauses, children make the fewest errors when recalling those with subject relative pronouns (Keenan & Hawkins 1987). Also, it has been claimed that because they are easiest to process, speakers tend to use subject relative pronouns more during discourse than other types of relative pronouns (Beaman 1987, Keenan 1975). Although the tendency to use subject relative pronouns seems to be well studied, it remains to be seen under what conditions relative clause heads are coindexed with non-subject relative pronouns.

Coindexing of relative clause heads with non-subject relative pronouns may occur when the object of the relative clause rather than the subject represents an animate entity (Kuno 1976, 1987). According to Kuno, clauses are organized around those entities which speakers find easiest to empathize with. Typically, speakers tend to empathize with entities which are human rather than non-human, and animate rather than inanimate (Kuno 1987, Currah 1988). Moreover, relative clause heads tend to be what the relative clause is about. As a result, according to Kuno, relative clause heads will tend to be coindexed with an animate rather than an inanimate entity. In fact, Rosenbaum (1978) reports that in his analysis of naturally occurring conversations, 83% of the relative clause heads represented human entities.

However, Kuno also maintains that speakers find it easiest to empathize with the grammatical subject of a clause rather than object. Thus, if a clause contains an animate or human entity, that entity will tend to be the subject of the relative clause rather than the object. This is supported to some extent by Rosenbaum's data. As Ard & Gass (1981) point out, 55% of those relative clause heads which Rosenbaum claimed were animate were also the subject of the relative clause. Furthermore, more than 50% of the non-animate relative clause heads were also coindexed with a relative pronoun which was the subject of the relative clause. Thus Ard & Gass maintain that animacy is not a primary consideration when determining relative clause heads. However, it does suggest that the object of the relative clause may be the head when it, and not the grammatical subject of the relative clause, represent a human or animate entity.

There also seems to be some evidence that the function of the relative clause is important in determining properties of relative clause heads, particularly its information status and grammatical role. On the one hand, relative clauses are used to disambiguate the possible referents of a relative clause head (Givón 1990). For example in (1), *the car* has two possible referents. However, the relative clause resolves the ambiguity.

1. Shelly tensed as a car sped past her. She got off her bike and walked as another car passed her, this time giving her more room. When she got home, she was surprised to see *the car* that sped past her in her driveway.

The need to clarify the intended referent arises when more than one potential referent for the relative clause head has been introduced into the discourse. Thus the relative clause heads tend to represent given information (Givón 1990)

Fox (1987), on the other hand, claims that the primary function of relative clauses is to anchor new information. That is, speakers use relative clauses to relate information which is new to the discourse to those elements which have previously been established in the discourse. Typically, a clause contains only one noun phrase which represents new information, all other noun phrases represent given information (Chafe 1987). Moreover, subjects tend to represent this given information (Chafe 1976). Thus in a simple transitive clause, objects, by default, will tend to represent new information. Therefore, clauses which are used to anchor new information would tend to have relative clause heads that are the object the relative clause and also represent new information. The subject noun phrases of these clauses would tend to remain within the relative clause and would function as the anchor.

Rather than rely on text counts, this study makes use of empirical data to support the claims being made here. In the first experiment, speakers were asked to express preferences for sentences presented in isolation. This allowed speakers to state their preference for relative clause heads without discourse pressures which would otherwise affect their judgments. The inclusion of definiteness as a factor was merely to remove it as a possible confounding effect since it has been argued elsewhere that speakers expect definite noun phrases to refer to given information (Prince 1979, Ariel 1985). Coding definite noun phrases as G and indefinite noun phrases as N made the scoring of data consistent with experiment 2. In the second experiment, however, the stimuli were presented within a written context, thereby providing an opportunity to explore how discourse based properties affect the determination of relative clauses in English. All noun phrases representing given information were definite. Conversely, all new noun phrases representing new information were indefinite.

2. *Experiment 1*

20 native speakers of English were presented with booklets containing 60 test items. Each test item consisted of a simple transitive sentence followed by two paraphrases, such as in (2).

2. The actor read the play.
    a) Here is the play that the actor read.
    b) Here is the actor that read the play.

In one paraphrase the object was the head of the relative clause and in the other, the subject was the head of the relative clause. Speakers were asked to read the original sentence and then circle the letter corresponding to the paraphrase they felt was most natural.

The grammatical subjects of the relative clause were either definite and human (SGH), definite and inanimate (SGI), indefinite and human (SNH), or indefinite and inanimate (SNI). Similarly, objects were either definite and human (OGH), definite and inanimate (OGI), indefinite and human (ONH), or indefinite and inanimate (ONI). Each subject type occurred with each object type three times, for a total of 48 stimuli. An additional twelve stimuli were included as distracters.

Responses were scored for preference of grammatical subject as the relative clause head. Responses indicating a preference for sentences containing subject relative pronouns were scored as 1 and responses indicating a preference for object relative pronouns were scored as 0. Thus for objects, low responses indicate a higher preference by speakers. The responses for each stimulus type were combined for a total raw score of between 0 and 3 for each stimulus type. Overall, there were 20 observations for each stimulus type. These scores were analysed using a two-way ANOVA with repeated measures to determine which, if any, main or interaction effects were significant. Where appropriate, a Tukey HSD test was used to determine significance between individual treatment means.

2.1 Results and Discussion. Overall, participants preferred those sentences which had relative clause heads which were co-referential with a subject relative pronoun. Speakers considered subject relative pronouns to be more natural than object relative pronouns in 78% of the responses. This would seem to confirm those analyses which claim that relative clause heads tend to be grammatical subjects.

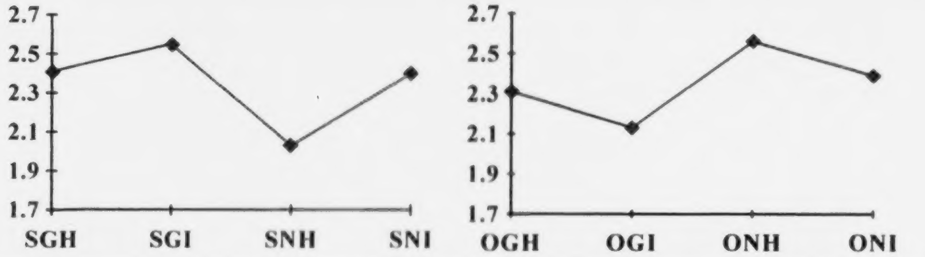

Figure 1. Cumulative Scores for Subject and Object Relative Clause Heads Experiment 1.

As shown in figure 1, the subject relative clause head with the highest cumulative score was SGI. The difference between the cumulative score for SGI and SGH and SNI was not statistically significant. The cumulative score for SNH was significantly less ($p>0.05$) than the cumulative score for all other subject relative clause heads. The implication here is that speakers do not prefer relative clause heads which are indefinite and represent human entities. The pattern of responses for object relative clauses, also given in figure 1, seems to confirm this hypothesis. The object type which had the lowest cumulative score was OGI, which was definite and represented an inanimate entity. The cumulative score for OGI was significantly lower ($p>0.01$) than the cumulative score for ONH, which was indefinite and represented a human entity.

The results presented here suggest that speakers tend to prefer subject relative pronouns over object relative pronouns, particularly when the subject was definite and inanimate. Similarly, speakers preferred to make the object the relative clause head most when the object was a definite noun phrase. The preference for definite NP relative clause heads may be influenced by the fact that the main clause of the stimuli was existential. In order to satisfy the condition that one element of a clause represent given information, subjects may have preferred to relativize definite NPs which tend to be associated with given information.

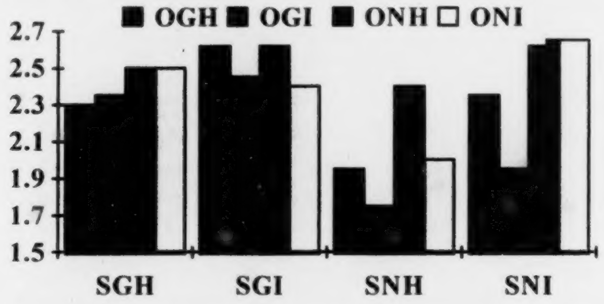

Figure 2. Cumulative Scores for Each Subject Type by Object Type.
Experiment 1.

The tendency to make definite subjects the relative clause head was diminished when it represented a human entity and the object represented an inanimate entity. Thus it seems that for sentences presented in isolation, it is preferable to have relative clause heads which are inanimate. However, this tendency does not seem to be very robust. Thus it does not appear that animacy is a consideration in the determination of relative clauses when presented in isolation. This is not surprising since the empathy principle proposed by Kuno (1976) is discourse based.

3. Experiment 2

Twenty-two native speakers of English were presented with booklets containing a total of 48 stimulus items. Each of the stimulus items contained a short paragraph containing two sentences which were paraphrases of each other. In one paraphrase, the object was the head of the relative clause and in the other, the subject was the head of the relative clause. The subjects were either given and human (SGH), given and inanimate (SGI), new and human (SNH), or new and inanimate (SNI). Similarly, objects were either given and human (OGH), given and inanimate (OGI), new and human (ONH), or new and inanimate (ONI). Each of the four subjects types was compared with each of the four object types. Each set of pairs occured in three different paragraphs for a total of 48 stimulus items. Because of the length of the task, no distracter stimuli were included.

As with the first experiment, responses were scored according to the speaker's preference for subject relative clause heads. Thus preferences for subject relative clause heads are expressed by higher cumulative scores and preference for object relative clause heads are expressed by lower cumulative scores. Responses were analyzed using a two-way ANOVA to determine the significance, if any, of both the main and interaction effects. Significance of the difference between individual cell means was determined using a TUKEY HSD post hoc test.

3.1 Results and Discussion. Overall, speakers indicated a preference for sentences which contained relative clauses with subject relative pronouns in only 53% of the responses. The cumulative score for each relative clause head is given in figure 3. The subject type with the highest cumulative score was SGH. It was significantly higher than the cumulative scores for SNH and SNI (p>0.05). Although SGI had a higher cumulative score than SNH and SNI, the difference was not significant. With respect to object relative clause heads, ONH and ONI had significantly higher cumulative scores than did OGH and OGI (p>0.01). Also, OGH had a significantly higher cumulative score than OGI (p>0.01). The results of the cumulative scores indicate that speakers prefer subject relative clause heads to represent given information and object relative clause heads to represent new information.

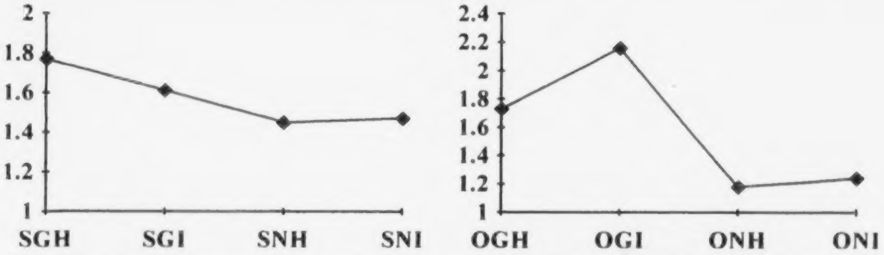

Figure 3. Cumulative Scores for Subject and Object Relative Clause Heads. Experiment 2.

The cumulative score for each object type when paired with each subject type is given in figure 2. As expected, the cumulative score for object relative clause heads was highest when the subject and object had similar properties, i.e., both were definite and inanimate. As well, the difference between the cumulative scores for OGI when it was paired with SGH and SGI and when it was paired with SNH and SNI was significant (p>0.05). Finally, the cumulative score for ONI was high when it was paired with SGH, SGI, and SNI. The only exception to this was when ONI was paired with SNH, which was indefinite and represented a human entity.

The cumulative scores for each subject type for each object type is given in figure 4. Some significant results are as follows. SGH, SGI and SNH had significantly higher cumulative scores when they occurred with objects which represented given information rather than new information (p>0.05). Also, OGH had a significantly lower (p> 0.05) cumulative score when it occurred with SGI and SNI, both of which represented inanimate entities. The cumulative score for ONH, the most preferred type of object, did not differ significantly across subject types. ONI had a significantly lower (p>0.05) cumulative score when it occurred with SNI than when it occurred with other subject types.

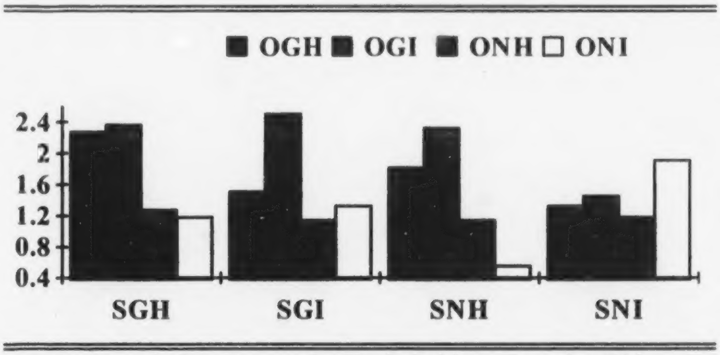

Figure 4. Cumulative Scores for Each Subject Type by Object Type. Experiment 2.

The preference to use subject relative pronouns most when the object was also given indicates that speakers prefer subject relative clause heads when the clause is a restrictive relative clause of the type discussed by Givón (1990). The low cumulative score for ONH and ONI when paired with SGH and SGI is consistent with Fox's claim that relative clauses with object relative pronouns are used to anchor new information. However, the preference to make OGI and OGH the relative clause head rather than SNI indicates that speakers prefer subject relative clause heads to be given or animate. The diminished preference for SNI as a relative clause head over OGH also seems to support this claim. The preference for SNI over ONI indicates that speakers prefer the head of the relative clause to be the subject of the relative clause when neither it nor the grammatical object is animate.

4. Conclusions

The results from both experiments indicate that grammatical role is a primary consideration when determining relative clause heads in English. This seems to support the notion that relative clause heads with subject relative pronouns are inherently easier to process than those with object relative pronouns. That this preference is all but eliminated when the test sentences are grounded in discourse indicates that the determination of relative clauses is equally affected by discourse based concerns.

This study has also demonstrated that there is a relationship between information status, grammatical role, and the function of the relative clause head. Specifically, it is suggested that subject relative clause heads tend to represent given information but relative clauses which are used to anchor information, tend to have object relative clause heads which represent new information. Moreover, this correlation seems to be well established, making discourse function/information status important considerations to the determination of relative clause heads in English.

As well, it appears that animacy is an important factor in the determination of relative clause heads. It was found that in discourse, speakers prefer relative clause heads to represent human entities rather than inanimate entities. This suggests that speakers tend to organize clauses around those entities which are easiest to empathize with.

Although there is still a need to test both the reliability and validity of the conclusions made in this analysis, this study has demonstrated that the various levels of syntactic representation are not necessarily autonomous. Rather, it is possible that linguistic constructions are affected equally by syntactic, semantic, and pragmatic factors. Thus if nothing else, this study demonstrates the need for linguists to take an integrated approach towards the study of linguistic phenomena.

REFERENCES

Ard, J. and Gass, S. 1981. "Predicting the Distribution of Relative Clause Types in Discourse." *General Linguistics* 21, 1-10.

Ariel, M. 1985. "The Discourse Functions of Given Information." *Theoretical Linguistics* 12, 99-113.

Beaman, K. 1987. "Coordination and Subordination Revisited: Syntactic Complexity in Spoken and Written Discourse." In D. Tannen (ed.), *Coherence in Spoken and Written Discourse*, 45-80. Norwood: Ablex

Chafe. W. 1976. "Givenness, Contrastiveness, Definiteness, Subjects, Topics, and Point of View." In C. Li (ed.), *Subject and Topic*, 25-56. New York: Academic Press.

Chafe. W. 1987. "Cognitive Constraints on Information Flow." In R.S. Tomlin (ed.), *Coherence and Grounding in Discourse*, 21-51. New York: Academic Press.

Currah, S. 1988. *The Pragmatic Function of* wa *in Japanese*. Unpublished M.Sc. thesis, University of Alberta.

Fox, B. 1987. "The Noun Phrase Accessibility Hierarchy Reinterpreted: Subject Primacy or the Absolutive Hypothesis?" *Language* 63, 856-870.

Givón, T. 1990. *Syntax, Vol II*. Amsterdam: John Benjamins.

Grosu, A. 1981. *Approaches to Island Phenomena*. Amsterdam: North-Holland Publishing.

Keenan, E. 1975. "Variation in Universal Grammar." In R. Fasold & R. Shuy (eds.), *Analyzing Variation in Language*, 136-148. Washington: Georgetown University Press.

Keenan, E. & Comrie. 1977. "Noun Phrase Accessibility and Universal Grammar." *Linguistic Inquiry* 8, 63-99.

Keenan, E. & Comrie. 1979. "Noun Phrase Accessibility Revisited." *Language* 55 (3), 649-664.

Keenan, E. & Hawkins, J. 1987. "The Psychological Validity of the Accessibility Hierarchy." In E. Keenan (ed.), *Universal Grammar: 15 Essays*, 60-85. London: Croom Helm.

Kuno, S. 1976. "Subject, Theme and Speaker's Empathy -A Reexamination of Relativization Phenomena." In C. Li (ed.), *Subject and Topic*, 419-444. New York: Academic Press.

Kuno, S. 1987. *Functional Syntax*. Cambridge: Harvard University Press.

Lehmann, C. 1986. "On the Typology of Relative Clauses." *Linguistics* 24, 663-80.

Maxwell, D. 1979. "Strategies of Relativization and Np Accessibility." *Language* 55, 352-371.

Prince, E. 1979. "Towards a Taxonomy of Given-new Information." In P. Cole (ed.), *Radical Pragmatics*, 223-255. New York: Academic Press.

Rosenbaum, H. 1978. "Relative Clause Structure in Informal Conversation." Paper delivered at the LSA Meeting December 1978.

IV

ASPECT

DISCOURSE AND THE MAKING OF GRAMMATICAL PARTICLES

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1. Introduction

This paper provides evidence for the relevance of discourse factors in the evolution of grammatical particles. A case in point is the historical development of modern Mandarin *le* [lə] 了, generally referred to as an aspectual marker which is a modern new form lacking in Ancient Chinese (Wang 1985). It is identified as a perfective aspect marker after the verb, but as a currently relevant state marker at the end of a sentence (see Li and Thompson 1981). It is by far the most active and productive grammatical marker in modern Mandarin. Its grammatical meanings include: (a) perfective, for which the marker *le* is most well-known and the development of which also historically precedes other grammatical functions encoded by this morpheme, (b) change of status (from one state to another), (c) realization of a new state, (d) imminent future, (e) attitudinal emphasis (i.e. as a modal particle at the end of a sentence), and (f) sequential immediacy of a following action. Examples of these are provided in the Appendix. To limit the scope of this paper, we will focus only on the development of the last: the immediacy aspect.

In Modern Mandarin the syntactic frame for encoding this meaning is as illustrated in (1), where the marker *le* immediately follows the verb, as a morpheme bound to the verb, whether the verb has an object following, as in (1b), or not, (1a). The function of *le* in this syntactic pattern is to emphasize the immediacy of a following action (V2) upon completion of the first (V1) in a two-action sequence expressed in a single sentence, similar to English 'having Verb1-*ed*, Verb2.' It also has the meaning of 'when the condition described by action 1 is met, action 2 is going to happen.' Example sentences are shown in (2). As the purpose of the speaker is to emphasize the temporal sequence between Verb1 and Verb2, the emphatic particle *jiu* 'then; Emphatic' also often appears before V2 to reinforce such a relationship.

(1) a. V_1+*le*, ... *jiu* V_2 ... Sequential Immediacy
b. V_1+*le* NP, ... *jiu* V_2 ...

(2) a. 他 來 了、我 們 就 走。
Ta lai le, women jiu zou.
3sg come ASP, 1pl then go
'As soon as he comes, we'll leave.' 'We'll leave when he comes.'

b. 他 買 了 書，就 回 家。
Ta mai le shu, jiu hui jia.
3sg buy ASP book, then return home
'After he buys the book, he'll go home.' 'He'll go home when he buys the book.'

The adverb *jiu* 'then,' as shown in (1) and (2), also indicates the speaker's positive attitude that the whole event will take place soon or can be easily achieved, namely 'as soon as V1 happens V2 will take place'. Another adverb *cai*, structurally parallel to *jiu*, allows the speaker to encode the opposite attitude that the entire event will not happen soon enough or can not be easily achieved, namely 'then and only then, not any sooner.' Regardless, the function of *le* here is to secure the tight and direct temporal sequential relation between the two actions. As such, it is also conducive to a conditional interpretation, a function that is more generalized and abstract than the original temporal sequential meaning.

The structure of the immediacy aspect is referred to as the *'le...jiu'* pattern in the teaching of Mandarin to foreign students. The language textbook *Practical Chinese Reader* (Liu et al. 1981:477) gives the following rule: "To indicate that two actions take place one immediately after the other, that is, the second action is to take place just after the completion of the first one, the aspect particle '*le* 了' must be added to the verb indicating the first action and the adverb '*jiu* 就' is usually used before the verb indicating the second action."

Having identified the grammatical morpheme that we are pursuing here, we will now turn to its evolution. The historical process involves not only the morpheme itself but also structures elsewhere in the language that are also evolving. They converge to form the pattern shown in (1). Two main strands of the process can be teased apart: (a) grammaticalization of the original ancient full verb *liao* 'finish', which consists of (a1) the expansion of the set of verbs with which it cooccurs due to analogical influence of other more frequent verbs that have semantic characteristics similar to those of *liao*, here referred to as FINISH verbs, (a2) the supplanting of these verbs by *liao*, (a3) attraction to the main verb (similar to the formation of the resultative verb construction also taking place elsewhere in the language (Chen, L. 1998) which changed Verb+Object+Verb$_{result}$ to Verb+Verb$_{result}$+Object), and (b) the fusion of this last pattern (i.e. action 1) with a following sentence that expresses an immediate action (i.e. action 2). The immediacy between action 1 and action 2 was in earlier stages of the language expressed loosely (i.e. not by overt structural codification) by lexical means or was a matter of pragmatic interpretation. The lexical means referred to are adverbial conjunctions translatable as 'and,' 'then,' 'and then,' and 'and immediately.' The gradual edging out of these adverbial conjunctions by the newer *jiu* has contributed greatly to the structural identity of this pattern. The progression from pragmatic to structural means of expressing immediacy can be likened to that displayed in the following English constructions: (a) *He arrived in Chicago. He called his wife*, (b) *He arrived in Chicago and called his wife*, (c) *After he arrived in Chicago, he called his wife*, (d) *Having arrived in Chicago, he called his wife*. The direction is: pragmatics --> lexical --> structural.

The reader will notice that the aspect marker is spelled *le* in modern examples, such as (1) - (2), but spelled *liao* in all the historical examples to be given throughout this paper. The graph (i.e. Chinese character) representing this morpheme has always been 了, whose modern phonetic value is *le* [lə] and whose ancient sound was [liau] (as attested in modern Chinese dialects and in Mandarin frozen expressions containing 了 that are left over from Classical Chinese -- see Section 2). The ancient sound represented by 了 is here spelled *liao* in accordance with the current Mandarin *pinyin* spelling system. It is not clear at what point *liao* changed to *le*. Historically 了 always rhymed with *liao* by convention in poetry.

This tradition continues (i.e. in singing) in modern times even though the morpheme is pronounced *le* [lə] in ordinary speech. Thus the fact that the form was rhymed with [liau] in poetry at a certain historical stage cannot be taken as evidence that the spoken form at the time still retained the original sound *liao* [liau]. It is safe to say that the phonetic value of the morpheme became *le* [lə] after the morpheme had lost its lexical status and could no longer be modified/preceded by a negator or other adverbials (such as *ye* 'also' or *dou* 'all') that typically signal the lexical status of the following verb.

As the immediacy aspect is historically derived from the perfective, the line of discussion in this paper will be from lexical, to perfective, to immediacy.

2. The history of *le*

The origin of this modern multifunctional aspectual marker can be traced back to texts of around the 5th century where it appears as a full-fledged lexical verb *liao*, meaning 'to finish, complete' (Yang & He 1992:654), as evidenced in *Shishuo Xinyu* ('a new account of tales of the world') by Yiqing Liu (404-444). The lexical status of the form is maintained for several centuries, as exemplified in (3) and (4), where it is modified by a negator *wei* 'not' and adverb *zu* 'enough' respectively. Modification by these forms is traditionally taken as positive evidence for the lexical status of a verb. In contrast, the modern aspect marker *le* cannot be modified by a negator or adverb.

(A Chinese character consists of a syllable. Unless otherwise indicated, all data in romanization given in this paper reflect Modern Mandarin pronunciation. All English glosses and translations are mine.)

(3) 吾 久 欲 注・ 尚 未 了。
Wu jiu yu zhu, shang wei liao. (early 5th cent. *Shishuo Xinyu*)
1sg long want annotate. still not finish
'I've long wanted to make annotations [to the book], but haven't accomplished this yet.'

(4) 便 足 了 一 生。
bian zu liao yi sheng. (ibid.)
then enough complete one life
'[If I can have that, my] life is complete.'

Today this morpheme is no longer a verb. It is a grammatical particle whose lexical verbal characteristics have been all but lost except in some frozen expressions left over from Classical Chinese, such as *mei wan mei liao* literally not-end-not-finish 'endless'. Along with the loss of its lexical status, its vowels have also been reduced from the early *liao* [liau] with a full tone to an unstressed schwa [lə] with only a neutral tone (i.e. without a tone) in Modern Mandarin.

Throughout the period from ca. the 5th century to just before the Transformation Texts (8-10th century), 了 kept the status of a lexical verb and occurred only sporadically. In the meantime, while its syntactic activity remained very minor, other older and more entrenched contemporary FINISH verbs (such as *qi* 訖, *yi* 已, *bi* 畢, *jing* 竟, *jin* 盡, *cheng* 成, etc., all of which shared the sense of 'finish' but with slightly different semantic nuances) began to show up more often after a main verb, most likely functioning to emphasize the completion of the action denoted by the main verb, as shown in (5a), (6a), (7a) (8) and (9).

Notations:
____: FINISH verb in Ancient Chinese
____: main verb

M: Modern Mandarin	ASP: aspect marker	ASP-St: stative aspect
ADV: adverbial marker	CL: classifier	PRO: pronoun

(5) a. 看 書 竟， 默 然 無 言
kan shu jing, mo ran wu yan
read letter finish, silent ADV no speech
'When [he] finished reading the letter [he] was quiet without saying a word.'
V+NP+V (ibid.)

M: b. 看 完 了 軍 書， 默 默 地 不 説 話
Kan wan le jun shu, momo de bu shuo hua
read finish ASP military letter, silent ADV not say word
'When [he] finished reading the military dispatch [he] was quiet without saying a word.'
V+V+ASP+NP (Modern Mandarin)

(6) a. 食 未 畢， 便 去。
shi wei bi, bian qu.
eat not finish, then leave
'Before [he] finished eating, [he] left.'
V+Neg+V (early 5th cent. *Shishuo Xinyu*)

M: b. 還 沒 吃 完 就 離 開。
hai mei chi wan jiu likai.
still not eat finish then leave
'Before [he] finished eating, he left...'
Neg+V+V (Modern Mandarin)

(7) a. 諸 婆 羅 門 聞 是 語 已， 瞋 目 呵叱
Zhu Poluomen wen shi yu yi, chen mu hechi
those Brahmins hear that words finish, stare eye scold
'When the Brahmins heard the words, their eyes bulged and they scolded.'
V+NP+V (5th cent. *Dazheng Dazangjing*)

M: b. 那 些 婆 羅 門 聽 到 了 這 些 話， 嗔 著 眼 罵 ...
Naxie Poluomen tingdao le zhe xie hua, chen zhe yan ma
those Brahmins hear-arrive ASP that CL words, bulge ASP-St eye scold
'When the Brahmins heard the words, their eyes bulged and they scolded.'
V+V+ASP+NP (Modern Mandarin)

(8) 諸 婆 羅 門 等 食 訖， 遊 行 而 自 放 散。
zhu Poluomen-deng shi qi. youxing er zi fangsan.
those Brahmins-pl eat finish, walk and self relax
'After all those Brahmins finished eating they walked away to relax.'
V+V (5th cent. *Dazheng Dazangjing*)

(9) 來 見之 已，而 問 之 言。
lai jian zhi yi, er wen zhi yan.
come see PRO finish, and ask PRO word (late 5th cent. *Baiyujing*)
'After he came and saw it, he asked them.'
V+NP+V

The Verb1+(NP$_{\text{object}}$)+Verb2 pattern with the second Verb emphasizing completion of action became popular and generalized to other verbs that indicate results. That is to say, while *liao* 了 was a full verb, elsewhere in the language the pattern Verb1+(NP$_{\text{object}}$)+Verb2 was forming and gaining frequency of usage before *liao* 了 joined in this construction. Examples are shown in (5a), (6a), (7a), (8) and (9). For comparison, the Modern Mandarin equivalents of (5a) - (7a) are shown in (5b) - (7b), respectively. (Note that at this stage the pattern is V+NP+V, whereas in Modern Mandarin the pattern is V+V(=*le*)+NP. Also, at the early stage a negator could intervene between the main verb and the FINISH verb (6a), whereas one is not allowed to do so in Modern Mandarin (6b). This shows the relative grammatical independence of the early FINISH verbs.

By the late 5th century, as seen in *Baiyujing* ('one hundred parables') of AD 492, most of these FINISH verbs had been edged out to a certain degree by the FINISH verb *yi* 已: Verb+(NP)+*yi* 已. Furthermore, an adverbial conjunction often followed such a construction to introduce a subsequent action. The occurrence of such an adverbial conjunction (single-underlined in the following three examples) was much more frequent than before.

(10) 聞 此 語 已，即 自 思 念...
wen ci yu yi, ji zi sinian
hear this saying finish, immediately self ponder (late 5th cent.)
'[When he] heard this being said, [he] immediately said to himself ...'
'As soon as [he] heard this, he set to thinking ...'

(11) 主 人 聞 已，更 為 益 鹽。
zhuren wen yi, geng wei yi yan
host hear already, further for add salt (late 5th cent.)
'[When] the host heard this, [he] further added more salt for [the visitor]'
'As soon as the host heard this, [he] added more salt for [the visitor]'

(12) 既 相 睹 已，方 知 非 鬼。
ji xiang du yi, fang zhi fei gui. (late 5th cent.)
already mutual look finish, only-then know not ghost
'It was only after they looked at each other that each knew that the other one wasn't a ghost."

We see here a pattern emerging in the discourse: V+V$_{\text{finish}}$, *(then)* ...

It was only later that the spread of this pattern reached the relatively isolated verb *liao* 了. The relative isolation of the verb *liao* can be attributed to its relatively more restricted, specified semantic content. It seems that as a full verb it most often had the meaning of bringing to fruition a long cherished desire or completing something that was destined to be done (see examples in (3) and (4) above).

As time went on, the more entrenched FINISH verbs mentioned earlier, including the favored *yi* 已 that we have seen in (10) - (12), apparently became too trite, as we see that more and more often the semantically more potent *liao* was employed in the syntactic position that was occupied earlier by these verbs. By the time of the colloquial Transformation Texts (known as *bian wen*) in the Tang Dynasty (7-10th century), *liao* 了 threatened to replace the other FINISH verbs, as can be seen in (13) - (15).

(13) 二 將 斫 營 已 了， 卻 歸 漢 朝。
er jiang zhuo ying yi liao, que gui Han chao.
two general destroy camp already finish, go return Han court
'After the two generals destroyed the [enemy] camps, they returned to the Han court.'
V+NP+V (8th cent. *Wu Zixu*)

(14) 子 胥 解 夢 了， 見 吳 王 嗔 之， 遂 從 殿 上…
Zixu jie meng liao, jian Wu wang chen zhi, sui ...
Zixu interpret dream finish, see Wu king angry PRO, then...
'When Zixu finished interpreting the dream, [he] saw that king Wu was angry; he then...'
V+NP+V (ibid.)

(15) 殺 子 胥 了， 吳 王 遂 與 越 王 粟。
sha Zixu liao, ... Wu wang sui yu Yue wang su.
kill Zixu FINISH, Wu king then give Yue king grain
'After Zixu was killed, king Wu then gave king Yue the grain.'
V+NP+V (ibid.)

Note that the syntactic pattern V1+(NP)+V2(=*liao*) here is still the old resultative or complement verb pattern, i.e., a pattern similar to that shown in (5) - (9). That is, syntactically *liao* functions here as a full verb complement and not as a suffix to the verb as we saw earlier in (1). But the original potent lexical meaning of *liao* 了, suggesting the completion of a long cherished desire/task, is being diluted as the form is employed with an ever-growing variety of verbs. That is, as it becomes more frequent, the lexical idiosyncrasy of *liao* 了 diminishes. Still, the grammaticalization is not complete (from the point of view of Modern Mandarin), for *liao* as Verb2 is at this stage still independent: it can be modified by an adverb 'already,' as seen in (13). Also, an NP can still occur between it and the main verb, as in (13)-(15).

Toward the end of the Transformation Text period some occurrences of *liao* behaved more like a grammatical particle than a lexical verb, as evidenced in (16).

(16) 長 成 了， 真 須 孝 父 母。
zhangcheng liao, zhen xu xiao fumu. (ca. 10th cent.)
grow-up ASP, indeed must filial-piety parents
'When children grow up [they] indeed must have filial-piety toward their parents.'

SEQUENTIAL->WHEN/IF CONDITION

The function of *liao* in cases like this was to signal a condition (*growing up*) given which the following action (*being filial to one's parents*) would occur. Similarly, in example (17) *liao* leads the reader/hearer to expect a subsequent action. The intent of the message is clearly in the second clause rather than the first, which serves as the condition or background for the second clause. Action 1 and action 2 are integral parts of one message.

(17) 待 女 男 安 健 了· 阿 娘 方 始 不 憂 愁。
dai nu nan anjian liao, aniang fang shi bu youchou. (ca. 10th cent.)
when girl boy healthy ASP. mother then begin not worry
'It is only when the children are healthy that the mother will stop worrying.'
SEQUENTIAL/CONDITIONAL

The process of grammaticalization of *liao* seen in the above two sentences was also influenced and hastened by the existence of the then popular verbal resultative complement *que* 卻 'retreat, go, gone' in a new common pattern Verb+*que*. *Que* had started out as a directional verb but soon began to function also as a verbal complement indicating the completion aspect, as can be seen in *zhuo que* 'hack off' (literally 'chop-go,' in an 8th cent. poem by Fu Du) and *xi que* 'wash off' (literally 'wash-go' in a poem by another 8th cent. poet Jian Wang). The paths of *liao* and *que* cross each other in the following example by Qiji Xin (1140-1207), in which *liao* still maintains its original full verb status with a historically original meaning of 'completing a long cherished desire/task,' and *que* serves as its completive or resultative complement.

(18) 了 卻 君王 天下 事
liao que junwang tianxia shi (12th cent.)
finish go king world affair
'to realize [the aspiration to restore] the kingdom'

Que (and also other directional verbs such as *qu* 'go' that functioned as verbal complements expressing completion) in constructions like (18) was eventually supplanted by the new-comer *liao* (Shimura 1995:59, Yang & He 1992:651, Chen, Z. 1992, Li 1990) by the 14th century. As it replaced these directional verbal complements, *liao* also picked up some of their semantic properties (such as 'gone,' 'no longer') regarding cooccurrence restrictions with the main verb.

The example in (18), vis-a-vis the examples in (16) - (17) above, also serves to illustrate the tenacity of an old usage of a linguistic form even when synchronically in different contexts/constructions, its usage has veered in another direction toward grammaticalization. The latter usage, i.e. that of marking perfective aspect, was by this time becoming the primary function of *liao*. This usage is seen in another example by the same writer, Qiji Xin, in which he mourns the passing of time (the loss of youth), rather than expressing desire to accomplish something.

(19) 又 匆 匆 過 了 清 明 時 節。
you congcong guo liao qingming shijie (12th cent.)
again hurriedly pass ASP qingming festival
'The Qingming festival came and left in a hurry.'
PERFECTIVE

This usage of *liao* as an aspectual marker appears quite frequently (though not as frequently as in Modern Mandarin) in the colloquial story tellers' scripts (*hua ben*) in the late Song dynasty (960-1278). Sentence in (20) is one such example from a story titled *Yang Wen Lanluhu Zhuan* ('the story of Wen Yang') in Hong (the 16th century).

(20) 在 店中 倒了 半 個 月。
zai dian zhong dao liao ban ge yue (ca. 13th cent.)
be-at inn in lie ASP half CL month
'[He] laid up at the inn for half a month."
PERFECTIVE

So far we have shown the success of *liao* in edging out other functionally similar FINISH verbs and resultative complements, such as *que*, in the process of grammaticalization. With the expansion of the set of verbs with which it cooccurs and the discourse contexts in which it appears, *liao* also begins to take on diverse grammatical meanings. It is upon the foundation of *liao* as a perfective aspect marker that its immediacy aspect usage began to develop.

3. Discourse as a competing ground where a dominant form emerges

As the completive aspect meaning of *liao* emerges, we also witness the incipient stage of the immediacy aspect. It is in the Transformation Texts that we begin to see the early signs of *liao* as functioning to mark the sequential immediacy aspect. Such usage followed a then prevalent narrative advancing pattern (21) in which the subsequent action was often indicated by a coordinate or adverbial conjunction (AC), e.g., *er* 而, *ji* 既, *ji* 即, *sui* 遂, *nai* 乃, *fang* 方, *bian* 便, similar to English 'and,' 'and then,' 'subsequently,' or 'then immediately,' 'only then,' 'thus.' Examples are shown in (22)-(26).

(AC: adverbial conjunction)

(21) Discourse narrative pattern
V1+(NP)+Vfinish, ...AC... V2

This pattern is commonly found in popular narratives with actions or episodes that take place one after another, as in the heroic tragedy of the 8th century *Wu Zixu* Transformation Text (in Yang 1989).

(22) 子胥辭 王 已 了，便 即 徵發 天兵。
Zixu ci wang yi liao, bian ji zhengfa tian bing.
Zixu take-leave king already finish, then immediately mobilize army (8th cent. *Wu Zixu*)
'After Zixu bid farewell to the king, [he] immediately mobilized the army.'

(23) 軍 官 食了，便 即 渡 江。
jun guan shi liao, bian ji du jiang. (ibid.)
military officer eat finish, then immediately cross river
'As soon as the officers finished eating, they crossed the river.'

(24) 答 語 已 了，留 船 即 去。
Da yu yi liao, liu chuan ji qu. (ibid.)
answer words already finish, leave-behind boat immediately leave
'After [he] answered, [he] left behind his boat and left.'
'Having answered, [he] left behind his boat and left.'

As is typical in an incipient stage of grammaticalization, there existed many forms with functions similar to that of *liao*. The most common one was *yi* 已 'already; finish,' which we have also seen in (7) and (9)-(12).

(25) 子胥聞此語已，即知是船人之子。
Zixu wen ci yu yi, ji zhi shi chuanren zhi zi. (ibid.)
Zixu hear this word finish, immediately know be boatman 's son
'Having heard this, Zixu immediately knew that [he] was the boatman's son.'

(26) 語已含啼而拭淚。
yu yi han ti er shi lei. (ibid.)
speak finish contain sob and wipe tear
'Having said that, [he] while sobbing wiped the tears.'

As this pattern became entrenched in discourse, the second conjoined sentence eventually lost its conjunction status and became an expected, necessary sequel to the first sentence. In this way, *liao* functioned as a signal for the presence of the following action; the two actions became one sentence with two symbiotic clauses translatable by English 'when V1..., V2...'

(27) Fusion of sequential action expressions
From: Action 1 *and/then* Action 2
To: *after/when* Action 1, Action 2

So strong was the signal sent by *liao* that the information contained in the conjunction "then" became unimportant, and the immediacy of the two actions was often expressed without the conjunction. In the meantime, the various adverbial conjunctions began to be consolidated and were most often simply expressed by *bian* 'then', which was later gradually taken over by *jiu* 'then; Emphatic' and *cai* 'only then', a process that was complete by the modern period. The beginning of this edging out process can be seen in the *hua ben* 'storyteller's scripts' of the 10-13th centuries; examples (taken from Hong's collection *Qingpingshantang Huaben*) are shown in (28) - (30), where we see variations of the pattern: (a) without a conjunction (28), (b) with *bian* as an adverbial conjunction (29), and (c) with *jiu* as an adverbial conjunction (30). Note also that (28a) retains the earlier V+NP+*liao* pattern, which occurs side by side in the same text with the newer V+*liao*+NP in (28b).

(28) a. intermediate stage: V1+NP+*liao*...V2...
那楊員外吃飯了過茶坊閑坐。
na Yang yuanwai chi fan liao guo cha fang xian zuo.
that Yang Mr. eat meal finish go-over tea house leisure sit
'After Mr. Yang ate the meal, [he] went over to the tea house to pass the time.'
TEMPORAL SEQUENTIAL (ca. 13th cent. *Yang Wen Lanluhu Zhuan*)

b. variant of (a) : V1+*liao*.+NP...V2...
那官人吃了酒和肉交茶博士也吃些。
na guanren chi liao jiu he rou jiao cha boshi ye chi xie. (ibid.)
that official eat finish wine and meat tell tea clerk also eat some
'After the official drank some wine and ate some meat, he asked the tea house clerk to drink and eat some too.'

TEMPORAL SEQUENTIAL (ibid.)

(29) 那 漢 說 了 上 馬 便 去。
na han shuo liao shang ma bian qu. (ibid.)
that man say ASP mount horse then leave
'Having said that, the man mounted the horse and left.'
TEMPORAL SEQUENTIAL

(30) 明 白 了 就 叫 侍 妾 近 前。
mingbai liao jiu jiao shiqie jinqian
comprehend ASP then call maid forward
'[When she] heard [this] [she] signaled the maid to come forward.'
TEMPORAL SEQUENTIAL (ca. 13th cent. *Cuo Ren Shi*)

As might be expected in a historical supplanting process, the older form *bian* lingered for a long time, its function overlapping with that of the new *jiu* in text after text. In two novels, *Jin Ping Mei* (JPM) ('the golden lotus') of the 16th century and *The Dream of the Red Chamber* (DRC) of the 18th century, the older *bian* appears much more frequently than *jiu*. Expectedly, the latter is harder to find in JPM than in DRC. The rate of increase of the appearance of *jiu* has continued until the present day; it has now almost entirely replaced *bian* in modern colloquial Mandarin. (In the following examples, both *bian* and *jiu* are underlined. The language in *The Dream of the Red Chamber* is considered by scholars to be Modern Mandarin (e.g. Wang 1985:4); thus 了 is spelled *le* here in (32) - (34).)

(31) 以 為 有 了 財， 便 可 為 所 欲 為。
Yiwei you liao cai, bian ke wei suo yu wei
think have ASP money, then can do what desire do
'[they] think that once [they] have money, [they] can do whatever they want.'
CONSEQUENTIAL (16th cent. *The Golden Lotus*)

(32) 一 見 了 他 兩 個，便 冷 笑 道...
Yi jian le ta liang ge, bian leng xiao dao...
once see ASP 3p two CL, then cold laugh say...
'As soon as he saw the two of them, he said with a sarcastic laugh...'
TEMPORAL SEQUENTIAL (18th cent. *Dream of the Red Chamber*)

(33) final stage: V+*liao*+NP, *jiu* VP

既 得 罪 了 他，就 有 本 事 承 任。
Ji dezui le ta, jiu you benshi chengren.
already offend ASP 3sg, then have ability undertake
'Now that you've offended him, you must bear the consequences.'
CONSEQUENTIAL (ibid.)

(34) 作 了 心 腹 人，便 把 親 戚 ... 都 看 不 到 眼 裡 了。
zuo le xinfuren, bian ba qinqi... dou kanbudao yan li le
be ASP confidant, then BA relative.. all unable-see eye in ASP
'Now that [he] is a confidant [of the big shot], he doesn't give a damn about those relatives of his... any more.'
CONSEQUENTIAL (ibid.)

BA: Disposal (also referred to as Object) marker

(35) (如 果) 我 中 了 獎，就 給 你 買 車。
(Ruguo) wo zhong le jiang, jiu gei ni mai che.
(If) 1sg win ASP lottery, then for 2sg buy car
'(If) I win the lottery, I'll buy you a car.'
CONSEQUENTIAL/CONDITIONAL (20th cent.)

(36) 她 打 了 電話 就 出 去 了。
Ta da le dianhua jiu chu qu le.
3sg make ASP telephone then exit go ASP
'After she made the phone call, she went out.'
TEMPORAL SEQUENTIAL (20th cent.)

From data such as those shown above, it appears that the early V1 *liao*... AC V2 (AC: adverbial conjunction) tended to express what is equivalent to English '*after* V1..., V2'; whereas the later usage of this construction, while keeping this meaning, also branched out to include the meaning '*when* V1..., V2,' and, still later, to '*if* V1, V2.' Synchronically, all these usages are found in Modern Mandarin, e.g. 'if' in (35) and 'after' in (36). While the construction V1 *liao*... AC V2 (i.e. the modern V1 *le*... AC V2) was extending to other functions, the aspect *liao* (i.e., the modern *le*), was also gaining other grammatical meanings elsewhere, which we will not go into in this paper except to point out that the sequential pattern can cooccur with a sentential ending *liao* 了 (also referred to as a modal particle, see e.g. Liu et al 1981:485) with a resulting past tense interpretation for the sentence as a whole (see example (2b) in the Appendix).

4. Conclusion

The grammaticalization of *liao* 了 from lexical verb to perfective aspect marker and further to immediacy aspect marker can be characterized as follows:

(37) Stages of grammaticalization:

Stage I	Lexical
Stage II	Formative period: Accrual of grammatical meaning through context and discourse factors (the replacement of other similar lexical verbs by *liao* and thus appearance of *liao* in more contexts and a widening of usage contexts through the inheritance of the cooccurrence capabilities of the replaced lexical verbs)
Stage III	Grammaticalization: increase of frequency, pattern setting
Stage IV	Extension to other aspect related grammatical meanings (going through stages similar to II and III)

This morpheme's earliest grammaticalization spin-off was from the lexical verb 'finish' to a completive aspect marker in the construction V+NP+V. As this construction appeared more frequently in discourse, its ability to enter into and take part in other syntactic or discourse patterns also increased. When one such originally provisional usage became more frequent, a potential new pattern was thus in the making.

While the new grammatical meaning emerged, the older one still existed and continued to branch out, if necessary discourse conditions were met (high frequency of the new combination being most important), resulting in synchronic layering (Hopper 1991) in Modern Mandarin, as can be seen in the examples provided in Appendix. Another fact revealed by the data is that the incipient grammatical *le* benefited from a syntactic environment/ground prepared by other earlier lexical words, before it edged them out. Therefore, before the new morpheme took over the functional ground, it coexisted with them. Thus at the early stage of the grammaticalization process we typically witness variants and overlaps in the discourse.

Not all Chinese languages utilize the perfective aspect morpheme as the basis for expressing a sequential immediacy aspect. For example, in Taiwanese, the sequential immediacy aspect corresponding to *le* is not expressed by means of the perfective aspect marker *a* in the language (an example of the Taiwanese perfective aspect marker *a* is shown in (38a)). Instead, it is generally expressed by a clausal conjunction particle, *na* 'if, when,' as shown in (38b), or by means of the FINISH verb *liau* (similar to the older form of present Mandarin *le*, see Section 2), shown in (38c).

(38) Taiwanese:
a. I lai a.
3sg come ASP
'He has come.' 'He came already.'
Cf. I lai e si
3sg come MOD time MOD: modifier marker
'when he comes' 'when he came'

b. I na lai, lan tioh kiaN. N: indicates vowel nasalization
3sg if come, 1pl then go -h: indicates a glottal stop
'As soon as he comes, we'll leave.'

c. I chheh be liau, tioh teng khi.
3sg book buy finish, then return go
'After he buys the book, he will go home.'

Unlike its Mandarin counterpart, Taiwanese *liau* has remained a verbal resultative complement similar to the historical *liao* of more than a thousand years ago, not only in function but also in phonetic shape. The directional verbal complement 'go' that was replaced by *le* (<*liao*) in Modern Mandarin became very active in Taiwanese and has since developed into an aspectual complement to the verb (Chen L. 1997). Phenomena like this have earned Taiwanese the reputation of being a conservative dialect of the Chinese language family. The fact that historically the Taiwanese FINISH verb *liau* did not evolve into an immediacy aspect marker as the predecessor (i.e. *liao*) of Mandarin *le* did, even though typologically the two are of the same language family (i.e. under similar structural constraints or tendencies), shows that semantic properties (and the bleaching of such) alone cannot account for a morpheme's path through history. Rather, discourse usage and subsequent conventionality plays an important role in the shaping of a grammatical morpheme. The development of the immediacy aspect maker is a good example of evolution from discourse to syntax (Givón 1979). In the development of the immediacy aspect marker one sees the tightening of a previously looser connection, effected by lexical means or pragmatic juxtaposition in the discourse, into a structurally overt, tight construction encoded by the marker *le* in the syntactic frame V1 *le*.... *jiu* V2.

b. 他 買 了 兩 本 書 就 回 家 了。
Ta mai le liang ben shu jiu hui jia le. (Past)
3sg buy LE two CL book then return home LE
'After he bought the book, he went home.'

(3) a. 他 好 了。
Ta hao le. (Change of status)
3sg good LE
'He's well now.', 'He's done.'

b. 他 胖 了。
Ta pang le.
3sg fat LE
'He's become fat.'

(4) a. 下 雨 了。
Xiayu le. (Emergence of a new state)
fall-rain LE
'It's raining now.'

b. 從 不 流 淚 的 王 真 同 志 痛 哭 起 來 了。
Cong bu liulei de Wang Zhen tongzhi tongku qilai le
ever not cry MOD Wang Zhen comrade cry begin LE
'Comrade Zhen Wang, who had never shed tears, began to cry loudly.'

(5) a. 他 就 來 了。
Ta jiu lai le! (Imminent future)
3sg EMP come LE
'He's coming right away!'

b. 吃 了。
Chi le !
eat LE
'Let's eat; don't wait.'

(6) 只 要 看 就 知 道 了。
Zhi yao kan jiu zhidao le. (Emphatic)
only if see then know LE
'If/when [you] see [this]..., [you] will understand.'

(7) a. 太 貴 了。
Tai gui le. (Determinant)
Too expensive LE
'It's too expensive!'

b. 錯 了。
Cuo le. (Determinant)
wrong LE
'[I'm/you're] wrong.'

REFERENCES

Chen, Lilly Lee. 1997. Metaphorical Extension. *Languages and Linguistics in China* Vol. 3. pp. 103-137. Taipei: Institute of History and Philology, Academia Sinica.

Chen, Lilly Lee. 1998. Are the Better, the Shorter, the Easier Forms Gaining the Upper Hand? A study on the evolution of Chinese. *Proceedings of the 16th International Congress of Linguists*, B. Caron (ed.). Oxford: Elsevier Science.

Chen, Zeping. 1992. Shilun Wanchengmao Zhuci Qu (on perfective aspectual qu 'go'). *Zhongguo Yuwen* (journal of the Chinese language) 1992:2:143-146.

Govón. Talmy. 1979. From Discourse to Syntax: Grammar as a Processing Strategy. *Syntax and Semantics Vol. 12 Discourse and Syntax* I, T. Givón. (ed.), 81-112. New York: Academic Press.

Hong, Geng. 16th century. *Qingpingshantang Huaben* (Qingpingshantang storytellers' scripts). Taipei: Shijie.

Hopper, Paul J. 1991. On Some Principles of Grammaticization. *Approaches to Grammaticalization* I, Elizabeth Closs Traugott and Bernd Heine (eds.), 17-36. Amsterdam: John Benjamins.

Li, Charles N. and Sandra A. Thompson. 1981. *Mandarin Chinese: a functional reference grammar*. Berkeley: University of California Press.

Li, Chongxing. 1990. Zutangji zhong de Zhuci Qu (the complement 'go' in Zutangji). *Zhongguo Yuwen* (journal of the Chinese language) 1990:1:71-74-146.

Liu, X. et al. 1981. *Practical Chinese Reader*. Beijing: the Commercial Press.

Shimura, Ryoji. 1995. *Zhongguo Zhongshi Yufashi Yanjiu*. (a study of the grammar of Middle Chinese AD 220-906). Translated from the original Japanese into Chinese by Jiang, L. and W. Bai. Beijing: Zhonghua.

Wang, Li. 1985. *Zhongguo Xiandai Yufa* (modern Chinese grammar). Beijing: Shangwu.

Yang, Bojun and Leshi He. 1992. *Gu Hanyu Yufa Ji Qi Fazhan* (a grammar of ancient Chinese and it's development). Beijing: Yuwen Chubanshe.

Yang, Jialuo. 1989. *Dunhuang Bianwen* (Dunhuang caves transformation texts). Two volumes. Taipei: Shijie.

APPENDIX

Different functions (as indicated in parentheses) of the grammatical marker *le* in Modern Mandarin, here glossed as LE:

(1) 他 買了 兩 本 書。
Ta mai le liang ben shu. (Perfective)
3sg buy LE two CL book
'He bought/has bought two books.'

(2) a. 他 買了 兩 本 書 就 回 家。
Ta mai le liang ben shu jiu hui jia. (Sequential Immediacy)
3sg buy LE two CL book then return home
'After he buys the book, he will go home.'

FOUR KINDS OF ASPECT

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0.1 Introduction

This study is concerned with the different ways of marking or presenting aspectual contrasts, more than with the aspectual contrasts themselves. It will be shown that there are typically four, and only four, different ways of producing verbal aspectual forms for use in discourse. One of these is lexical (Aktionsart), and there is a continual interplay between lexical aspects and grammatical aspects, to the point where some lexemes are rarely if ever found with certain grammatical aspects (e.g. **I am knowing*). Of the two commonly known grammatical forms of aspect, one (synthetic or derivational) is reflected in the grammatical morphology of the single word. The other (analytic or syntactic) is found in compounds formed with some kind of auxiliary with the main verb. The fourth kind of aspect, which is rarely mentioned in current manuals or monographs that deal with tense and aspect, is inherent not to the lexeme, but to the tense form of the verb. Since time is movement, and all tenses are representations of time, tenses may represent time as movement of background against figure (Descending Time) or of figure against background (Ascending Time). This simple binary contrast explains why the unmarked tenses of some languages (e.g. Greek, Slavic) represent incomplete events, Imperfectives (representations in Descending Time), whereas the unmarked tenses of other languages (English, Hindi) represent complete events, Performatives (representations in Ascending Time). Finally it is shown that these four different kinds of representation are distinctive: an Imperfective (synthetic) is not the same as a Progressive (analytic); and a Perfective (synthetic) is not the same as a Performative (immanent). In short, the taxonomy proposed here leads to a much more subtle understanding of cognitive aspectual contrasts.

1.1 Aktionsarten

The German word *Aktionsart* is normally used for an aspect that is lexically based, and there is a considerable literature on such Aktionsarten. One of the earliest commentaries on English Aktionsart is the four way classification of verbs by Vendler (1967) into

(1) states (*know, exist, see, lie*),

(2) activities (*run, drink, work, carry*), both of which are fundamentally Imperfective,

(3) actions (*give, throw, show, tell*), (4) achievements *(make, build, create, design*), both of which are typically Perfective.

The basic lexical sense of a verb, however, may be ambiguous in varying degrees, and ultimately only decided by context and situation. *To cook* is an activity, whereas *to cook on Friday evening* is an action, and *to cook a meal* an achievement, which should, if everything goes right, have a product that is edible, which is what would make it an achievement.

1.2 Marked Aktionsart Contrasts

An Aktionsart that is typical of the bare lexeme may also be altered derivationally: *to do* is normally Imperfective, as in *What are you doing?* but *to redo* is Perfective, since one normally redoes what has already been done, and is therefore complete. The redoing is consequently seen as a complete act. *To drink* is normally Imperfective in English; *to drink up* or *drink down* is Perfective, and the phrasal verbs of English often create Perfective forms for the basic verbal lexeme, the phrasal particle corresponding to what is often a preverb in other languages.

The use of preverbs, as with English *redo*, to create contrastively Perfective forms of the verb is of course a noted feature of all Slavic languages except the southernmost (Bulgarian and Macedonian). Russian, for example, has two tenses in the verbal system, a Past Imperfective and a Non-past Imperfective, and that is all: there are no other indicative forms in the system, as there were in Old Church Slavic for example, which had an aorist, with special verbal inflections, to mark the Past Perfective. Today the necessary Perfective vs. Imperfective contrast is made by Aktionsart adjustments. Russian *pit'* 'drink' which is Imperfective, is made Perfective in all its paradigmatic forms by the addition of a preverb:

(5) *ya pil* 'I was drinking' (Impfv); *ya popil* 'I had a drink' (Pfv).

Whereas Perfective Aktionsart is marked by preverbs in Slavic languages, Imperfective Aktionsart is often marked by derivational suffixes, so that

(6) *ya popyval* 'I kept on having drinks' (Impfv: Iterative).

shows that the addition of an Imperfective suffix to a Perfective stem can create an

Iterative stem: the representation of an incomplete or open series of complete events.

2.1 *Synthetic Aspect*

In a form like *popyval* both the prefix and the suffix are derivational rather than paradigmatic entities. In short these affixes are not fully regular in their distribution, not available to all verbs of the language. Both suffix and prefix in the form *popyval* are Aktionsart adjustments, whereas the suffix /-u-/ that marks the perfect in Latin verbs, whether added after a thematic vowel or after a consonant as in (7), is a marker of a contrast that is systemically regular in the Latin verbal system. This is an aspectual contrast between present and present perfect, the simple present being Imperfective in Latin, and the present perfect Retrospective (two different aspects of the present tense).

(7) laudat, laudāuit 'he praises, he (has) praised' (thematic)
molit, moluit 'he grinds, he (has) ground' (athematic)
(contrast called Infectum vs. Perfectum by Latin grammarians)

All tenses of the indicative and the subjunctive have Infectum and Perfectum forms, and so do the infinitives. In these cases we are looking at grammatical marking rather than lexical or Aktionsart marking, the difference between the two being decided entirely on the basis of regularity of distribution: paradigmatic contrasts (which are regular) vs. non paradigmatic or derivational contrasts (which are not).

Suffixes such as the /-u-/ perfect marker of Classical Latin, because of the regularity of their distribution, are considered to be markers of synthetic aspect, that is to say grammatical aspect that is morphological, paradigmatic, and marked in the morphology of a single word, and therefore *synthetic*, since the marker combines with the lexical stem.

2.2 *Analytic Aspect*

Synthetic markers of aspectual distinctions differ categorically from analytic aspectual forms, which are composed of more than one word: an auxiliary that carries the necessary grammar of the form, and a lexeme that is grammatically restricted (a participle or infinitive), as in the three examples from English in (8).

(8) I have spoken, I am speaking, I will speak

Compound verbal forms in English are, in terms of their morphosyntactic formation, examples of analytic aspectual forms, Retrospective (perfect), Progressive, and Prospective.

The analytic aspectual forms of Indo-European languages are almost always composed of finite auxiliary and non finite verbal lexeme, whether infinitive or participle, the quasi nominal elements of the verbal paradigm. In other language families, such as Semitic or Bantu, both auxiliary and lexical verb may be tensed and finite as shown by the examples in (9) from Swahili.

(9) *amelala* 's/he has fallen asleep, is asleep'
alikuwa amelala 's/he had fallen asleep, was asleep'
atakuwa amelala 's/he will have fallen asleep, will be asleep'
(a=3ps, me=perfect, lala=sleep, kuwa=be, li=past, ta=future)

There are constraints in these compounds, however: only the initial element, the auxiliary, may be *marked* for tense. The second element may be marked for aspect, but not for tense.

3.1 Immanent Aspect

Finally we turn to our fourth kind of aspect, Immanent Aspect, which is neither synthetic nor analytic, since it is not in any way marked in the morphosyntax, but is inherent to the representation of certain grammatical forms of the verb in much the same way that aspects may be inherent but unmarked in lexical forms of the verb. Lexical forms such as

(10) *speak and talk*, are Imperfective, have a different Aktionsart from *say* and *tell* which are Perfective, aspectual contrasts which are entirely inherent to the lexical meanings.

It has never been commonly realized that there are two different Immanent aspects, because any representation of time has two possible orientations, Ascending Time and Descending Time, discussed by Gustave Guillaume as far back as 1929, and quite extensively discussed in more recent literature by scholars from different theoretical viewpoints.

The concepts of Ascending and Descending Time are essential for an understanding of verbal systems; these two conceptualizations of time are just as common as the conceptualizations of mass nouns and count nouns in nominal systems. Time is movement, and cognitive apprehension of movement requires either a figure moving against a ground (Ascending Time) or the ground moving against the figure (Descending Time). These alternate representations are discussed in Benveniste 1965, Clark 1973, Fillmore 1975, Traugott 1978, Lakoff and Johnson 1980:41ff, and Fleischman 1982.

For the purposes of what follows I shall propose a simple mnemonic device: if we present a TV clip of a man climbing a wall, there are two possibilities: either we show the whole wall, keeping the camera still, in which case we see the man move up the screen (Ascending Time), or we zero in on the figure of the man, following him by camera as he climbs, in which case the man is the focus of the picture, and we see the wall move down the screen (Descending Time). Linguistically the contrast may be represented as in (11).

(11) I saw him climb the wall (Ascending Time).
I saw him climbing the wall (Descending Time).

Each option has its own representational consequences. If we keep the camera still we get a representation of the whole event from beginning to end; the event forms a complete unit, and the comparison may be made with a count noun. If the camera moves and we follow the moving figure, we see the interiority of the event as a progression, and even if we follow the event to the end, we get a representation of the moving figure completing the event, not a representation of the event as a unit; the comparison may be made with a mass noun, a representation lacking clear boundaries.

What has not been commonly realized is that a whole tense system may be in Ascending Time, with basic tense forms, exponents of Performative aspect, representing complete or unchanging events, as in English, where our simple past tenses, unmarked for aspect, represent complete events, as in (12).

(12) Performative |X-------------------->| (e.g. Eng. *spoke, ran, saw)*

We may represent the English tense system, therefore, as two tenses in Ascending Time, dividing the whole of Universe Time (capitals indicate a linguistic representation) into a simple binary contrast of Memorial vs. Non-memorial time, as in (13).

(13) ∞-------------------------------->|------------------------------->∞
Memorial Time Non-memorial Time

This view of the English tense system is not a new idea; the germ of it is in Guillaume 1929, and it is a commonplace of such fundamental Guillaumian works as Hirtle 1967 and 1975. The term Performative is new, however, to distinguish this kind of aspect which is unmarked, and yet represents complete events, and to distinguish this way of representing complete events from the Perfectives found in other languages, which are always marked forms.

In the survey of Indo-European languages in Hewson and Bubenik 1997 it is shown that the majority of IE languages, unlike English, have basic tenses in Descending Time, as already mentioned for Slavic, and as may also be seen in (14), the indicative paradigm of Classical Greek (forms in 3rd. person).

(14)

	NON-PAST	PAST
Imperfective	lúei	élue
Perfective	lúsei	éluse
Retrospective	léluke	elelúkei

Here the tenses that are unmarked for aspect are Imperfective (present and imperfect, first line), and represent events in progress, as opposed to the future and aorist (second line), which are Perfectives, marked with a suffixed sigma, and the perfect and pluperfect (third line), Retrospectives marked with reduplication and a suffixed kappa. In short the immanent aspect of the two basic tenses, which are both Imperfective, is made Perfective by a sigmatic suffix, and made Retrospective by suffixation and reduplication. We may diagram the Perfective vs. Imperfective contrast in the Greek system as in (15), with Imperfectives above the line and Perfectives below.

```
(15)          élue                               lúei
           |<-----X- - -|                    |<-----X- - -|
∞<------------------------------------|<------------------------------------∞
              éluse                              lúsei
           |<----------X|                    |<----------X|

           Memorial Time                   Non-memorial Time
```

Here we see a system in Descending Time, where the unmarked tenses are Imperfectives, and the Perfective forms are marked, since they represent Imperfective forms that are pushed to completion.

4.1 Conclusion

To show the quasi universality of these four ways of marking aspectual distinctions, we can find examples of all four types in IE languages that are familiar to us, as in the English examples in (16), in IE languages that are less familiar, as in the Greek examples in (17), and finally, in languages outside the IE phylum, as in the Swahili examples from Bantu in (18).

(16)	ENGLISH	Aktionsart	*make* vs *do*	(Achievement vs. Activity)
		Synthetic	*doing*	(Imperfective)
		Analytic	*have done*	(Retrospective)
		Immanent	*did*	(Performative)

In the Aktionsart examples it is best to give a contrastive lexical pair in order to emphasize that it is the lexical meaning that is in question. Turning to the grammatical aspects, the *-ing* suffix marks a verb as Imperfective or Progressive, and also marks a noun (e.g. *flooring, roofing, clothing* as a mass noun). The Retrospective in English is analytic, always consisting of auxiliary *have* plus past participle. Finally the tensed forms of English typically represent complete or unchanging events.

(17) GREEK	Aktionsart	*dóte* vs. *dídote* 'give!'	(Action vs. Activity)
	Synthetic	*égrapse* 'he wrote'	(Perfective)
	Analytic	*gegrámmena ôsi*	(Retrospective)
	Immanent	*égraphe* 'he was writing'	(Imperfective)

The irregular verbs of Greek, instead of making use of the regular synthetic suffixes to make aspectual distinctions, often use Aktionsart adjustments instead. Given that the verb 'to give' is Perfective by Aktionsart, the present and imperfect tenses are formed on a reduplicated stem: *dído:mi* 'I am giving', and *édidoun* 'I was giving', whereas the aorist and future use the simple *do:-* stem. The same is true for other lexical Perfectives: *híste:mi* 'I set up', *títhemi* 'I put'. Our example shows the two typical forms of the plural imperative, called aorist (*dóte*) and present (*dídote*), misleading titles because these are not tenses, but quite simply the aspectual distinction of Perfective (aorist) versus Imperfective (present). The aorist *égrapse* 'he wrote' has the sigmatic suffix. Analytic forms are very rare in the Greek verbal paradigms, which are largely synthetic, and the example given is a Middle Voice perfect subjunctive: 'that they (neuter) may have been written'. Finally the unmarked lexical stem is used by the Imperfect *égraphe*, showing a tense form that is not marked for aspect, but contrasts with the marked aorist *égrapse* above.

(18) SWAHILI

Aktionsart	*amelala* 'is asleep'	(State)
	vs. *amekimbia* 'has run'	(Activity)
Synthetic	*anakimbia* 'is running'	(Imperfective)
Analytic	*alikuwa anakimbia* 'was running'	(Imperfective)
Immanent	*alikimbia* 's/he ran'	(Performative)

Bantu stative verbs typically use the present perfect for present reference, so that *amelala* strictly means 'has fallen asleep', and consequently 'is asleep', whereas the same form with *kukimbia* 'to run' gives a normal Retrospective reference: *amekimbia* 'has run'. In Swahili the second position in the verb (immediately after the subject marker) may be used for either tense or aspect markers, such as the Imperfective *-na-* in *anakimbia*. Such forms, marked for aspect but not tense, may then be used after tensed auxiliaries (*a-li-kuwa* 'was'), as in the Analytic form given. The last form has the same *-li-* marker for past tense, and no aspect marker, but represents a complete event, and is therefore necessarily a Performative in Ascending Time.

4.2 The Meaning of Grammatical Forms

Although this paper has been primarily about the different morphosyntactic ways that languages can mark aspectual differences, it should be noted that it is also a complete rejection of the traditional view of verb meanings, stemming from Reichenbach 1947/1966. Reichenbach views verb forms as a nomenclature for events in the real world, as if it were possible to map verb forms onto real world events, which are then the meaning of the verb forms. Reichenbach's heavy-handed positivism is, in fact, unworkable. If I say

(19) I have seen that film; I saw it last week. *I have seen that film last week.

I use two different verb forms to represent the same event. How can one event be the meaning of both verbs, which have contrastive meanings to the point that one of them cannot be used with adverbs of past time. A language is not a nomenclature; it is a system of representation, that allows me to represent an event either as a part of my past experience (*I have seen that film*) or as something that took place at a definite time (*I saw it last week*).

Because a language is a system of representation, an Aktionsart is a different representation from that of a synthetic grammatical aspect; a lexeme, for example, has no representation of time, as is found in the grammatical forms of the verb, so that when we use the term Imperfective of an Aktionsart, we necessarily mean materially incomplete rather than temporally incomplete. *To speak* (Fr. *parler*, Russ.

govorit') is Imperfective by Aktionsart, whereas *to say* (Fr. *dire*, Russ. *skazat'*) is Perfective. But both of them can be represented as grammatically or temporally complete (*I spoke, I said, j'ai parlé, j'ai dit*) or incomplete (*I was speaking, I was saying, je parlais, je disais*).

Likewise, when Austin (1962) uses the term *performative* for such expressions as *I promise, I resign*, he is referring to the fact that a promise has been made, a resignation tendered: only in the first person are these verbs lexically performative. These are materially complete performances that have value in a lawcourt, whereas *he shoots, he scores* are performances of events that are complete in time, but irrelevant to the law courts because the subject is third person, and is not declaring himself to be performing anything.

An analytic form is also a different representation from a synthetic form, so that it is sometimes impossible to translate French imperfects (synthetic forms) by English progressives (analytic forms), as in (20).

(20) Les anciens ne savaient pas que le Canada existait.
The ancients *_were not knowing_ that Canada *_was existing_.
The ancients did not know that Canada existed.

Just as Imperfectives and Progressives are different representations of incomplete events, Perfectives and Performatives are also subtly different representations of complete events. Since the Imperfective, as we see in (20), is normally used for the past of stative verbs, the Perfectives of such verbs have an inceptive sense, so that Greek *ebasíleuse* is not the equivalent of the Performative 'he reigned' (which would be translated by an imperfect), but means 'he became king'.

Finally we may note that Immanent Aspect, which can only be Imperfective or Performative (depending on whether time is represented as descending or ascending), since it is not in any way marked for any aspectual meaning, is not analytically accessible to any researcher who fails to see that a language is a system of representation. In that case, for that researcher, it must remain for ever a mystery as to why the basic tenses in some verbal systems are Imperfectives, typically representing incomplete events, whereas in other verbal systems (of languages that are often historically related) the basic tenses are Performatives, typically representing complete events or unchanging states.

REFERENCES

Austin, J.L. 1962. *How to Do Things with Words*. Cambridge, MA: Harvard University Press

Benveniste, Emile. 1965. "Le langage et l'expérience humaine". *Diogène* 51.3–13. (Repr. in Benveniste 1966).

Clark, Herbert H. 1973. "Space, Time, Semantics, and the Child". *Cognitive Development and the Acquisition of Language* ed. T. Moore. New York: Academic Press.

Fillmore, Charles J. 1975. *Santa Cruz Lectures on Deixis, 1971*. Bloomington: University of Indiana Linguistics Club.

Fleischman, Suzanne. 1982. "The Past and the Future: Are They 'Coming' Or 'Going'?" *Proceedings of the 8th Annual Meeting of the Berkeley Linguistics Society*, 322–334. Berkeley, Calif.

Guillaume, Gustave. 1929/1965. *Temps et verbe*. Paris: Champion.

Hewson, John & Vit Bubenik. 1997. *Tense and Aspect in Indo-European Languages. Theory, Diachrony, Typology*. Amsterdam: Benjamins.

Hirtle, Walter H. 1967. *The Simple and Progressive Forms*. Québec: Presses de l'Université Laval.

Hirtle, Walter H. 1975. *Time, Aspect and the Verb*. Québec: Presses de l'Université Laval.

Lakoff, George & Mark Johnson. 1980. *Metaphors We Live By*. Chicago: Univ. of Chicago Press.

Reichenbach, Hans. 1947/1966. *Elements of Symbolic Logic*. New York: Free Press; London: Collier-Macmillan.

Traugott, Elizabeth C. 1978. "On the Expression of Spatial-Temporal Relations in Language". *Universals of Human Language* ed. by J. H. Greenberg, vol. III 369–400. Palo Alto: Stanford Univ. Press.

Vendler, Zeno. 1967. *Linguistics in Philosophy*. Ithaca, N. Y.: Cornell University Press.

JAPANESE ASPECTUAL COMPOUND VERBS AND TRANSITIVITY

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1. Introduction

Japanese is an agglutinative language, and is distinctively marked with morphological pairs of intransitive and transitive verbs in terms of derivational morphemes (Cf. Jacobsen 1992, Inoue 1976, 1995, Okutsu 1967). However, when these verbs form aspectual compounds (V1+V2), there is a peculiar distribution in terms of transitivity. Transitive verbs overwhelmingly tend to appear in the V2 position of the aspectual compound verbs, for example, V2 in inception compound verbs is exclusively morphologically transitive (1a, 2a, and 3a).

This paper examines how the derivational morphemes *-e-*, *-as-* and *-ar-* interact with transitivity in the formation of aspectual compound verbs of inception within the framework of a cognitive semantic approach (Langacker 1991, Talmy 1985). The morpheme *-as-* is a transitive morpheme which is a variant of causative morpheme *-sas-* (Inoue 1995) and *-ar-* is an intransitive morpheme which is a derivational morpheme of a passive morpheme in Old Japanese. The *-e-*, which is also a derivational affix, appears to be derived from the verb *eru*. The verb *eru* "get" is polysemous (cf. the semantic notion of "get" is cross-linguistically polysemous--inchoative, passive, potential). The distribution of the morpheme *-e-* stretches over both intransitive and the transitive verbs, as in the transitive *hajim-e-ru* and intransitive *hajim-ar-u* group and transitive *-d-as-u* and intransitive *d-e-ru* group in Table 1. Regardless of their transitivity, all of these verbs (1a, 2a, and 3b) have the morpheme *-e-* .

1a Taro wa tegami o kaki+hajim-*e*-ta.
TOP letter ACC write+begin-(vt)-PAST
'Taro began writing a letter.'

*1b Taro wa tegami o kaki+hajim-*a*-tta.
write+begin-vi-PAST
'Taro began writing a letter.'

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2a Taro wa tegami o kaki+kak-*e*-ta.
TOP letter ACC write+ACROSS-vt-PAST
'Taro was about to write a letter.'

*2b Taro wa tegami o kaki+kak-*a*-ta.
write-ACROSS-vi-PAST
'Taro was about to write a letter.'

3a Taro wa tegami o kaki+d-*as*-(i)ta.
TOP letter ACC write+OUT-vt-PAST
'Taro dashed into writing a letter.'

*3b Taro wa tegami o kaki+d-*e*-ta.
write-OUT-vi-PAST
'Taro began writing a letter.'

Japanese aspectual compound verbs have recently been studied within structuralist frameworks (Shibatani 1973, Kuno 1983, 1987, Matsumoto 1992, Kageyama 1993). Jacobsen (1992) identifies "transitivity pairs" of compound verbs (V1:vt + V2:vt) and claims that aspectual compounds exclusively take morphologically transitive verbs in V2 regardless of the transitivity of V1. This is not always the case; for example, the completion verb *owaru* 'finish:vi' as opposed to the inception verb *hajimeru* 'begin:vt' occurs more frequently and with a greater variety of V1 verbs, in V2. Jacobsen's view basically corresponds to the structuralist view found in Shibatani and Kuno, which claims that *hajimeru* derives two different types of underlying structures: an intransitive construction with *hajimeru* taking a sentential subject, and a transitive construction with *hajimeru* taking two arguments within the Transformational framework[1]. In fact, all these aspectual lexical items behave quite systematically in terms of morphology. The peculiar distribution that inception takes exclusively transitive pairs in V2, even though there is *hajimaru* which is an intransitive counterpart of *hajimeru* 'begin:vt' as a full verb. *Hajimaru* 'begin:vi' never occurs to form the compounds.

This paper provides a natural account for the correlation between transitivity and inception verbs, and examines how the derivational morphemes *-e-*, *-as-*, *-ar-* function in the formation of aspectual compound inception verbs and how their inherent semantic properties correlate with "transitivity" (cf. Jacobsen 1992:8). I propose that these morphemes have inherent semantic properties which determine aspectual compound predicates and reflect the grammaticalization path. The cognitive semantic approach with a force-dynamic notion (Langacker 1987, 1991, Talmy 1985), which is adopted in this paper, provides a theoretical analysis to deal with the internal structure of these aspectual verbs[2] referring to both process and state. Moreover the grammaticalization path of these aspectual verbs directly involves a gradual process of semantic shift (Traugott 1995, Heine et al. 1991) so that it is necessary to introduce the notion of "profile," and "base" in Langacker's terms. I focus on the inception compound verbs (*-hajimeru*/(*hajimaru*), *-kakeru*/(*kakaru*), *-dasu*/(*deru*)) which exclusively take their morphologically transitive counterpart, and refer to other aspectual compound verbs as necessary.

2. Preliminary Notions

There are multifaceted layered time-aspect segments of the inception of an event, such as a sudden or abrupt change of state, a gradual change of state, or prior to the onset of the event involving a scope of the inception which is realized as a profiled segment against its base which indicates the scope of the predication. Langacker (in press) distinguishes between "profile" and "base" by using an example "elbow": the profile designates the joint where the arms bend, which is in the arm (immediate scope of predication) which are nested in a whole human body (overall scope of predication), and the arm and the whole human body are "base."

All these perceptions are linguistically coded in Japanese with different lexical items of conceptualization which are *hajimeru* 'begin-vt', *dasu* 'take out', *kakeru* 'hang-vt' in V2. They hold "force dynamics" (Talmy 1985, 1988)[3] in common, and agentivity is one of the crucial semantic properties of the morphemes *-e-ru* . They are paradigmatically selected to code different time-aspect segments of a scene, since each lexical item profiles a different phase of the inception of the event.

To keep terminological clarity, this paper adopts Comrie's terminology (1982) "perfect" vs. "prospective" rather than "imperfective" vs. "perfective" for the following reason. "Imperfective" can be misleading when dealing with the morpheme *-e-* having an iterative reading (see examples from (26) to (31)) as well as the indication "state" which can be accounted for as "imperfective". Therefore, I avoid using the terminology "perfective" vs. "imperfective". Moreover, there is a strong correlation between aspect and voice – agent-orientedness/theme(patient)-orientedness (cf. Delancey 1982) – which can be observed in the interaction between the morphemes (*-e-* vs. *-ar-*) and the formation of inception compound verbs.

3. Morphological Information

Hajimeru, *-kakeru* and-*dasu* denote the inception of a process, and all of them are transitive verbs forming aspectual compound verbs, although they have morphologically intransitive counterparts. These lexical items belong to two different groups and their transitivity is distinguished by affixation, i.e. the morpheme *-e-* serves to transitivize a stem and the morpheme *-ar-* to intransitivize a stem in (A). The morpheme *-e-* also occurs as an intransitive affix in *d-e-ru* 'go out' in the morphological pairs *d-as-u* 'take out' in (B).

Table 1. Morphological Pairs of Transitive and Intransitive Verbs

(A)	vt | vi	(B)	vt | vi
hajim	[-*e*-|-*ar*-] "begin"	*d*	[-*as*-|-*e*-] "take out/go out"
kak	[-*e*-|-*ar*-] "hang"	*ak*	[-*as*-|-*e*-] "dawn|spend (the night)"
ag	[-*e*-|-*ar*-] "raise/rise"	*hag*	[-*as*-|-*e*-] "peel off"
som	[-*e*-|-*ar*-] "dye/be dyed"	*kar*	[-*as*-|-*e*-] "let wither/wither"
		tok	[-*as*-|-*e*-] "melt"
		sam	[-*as*-|-*e*-] "cool/become cool"

There is a hierarchical order of transitivity among these morphemes. The hierarchical order I have laid out as follows:

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Transitive    Intransitive
    |       \ /       |
  -as -     -e-      -ar-
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There is a correlation between the hierarchical order of these morphemes and the different levels of control or energy flow: encompassing the continuum from the agent absolutely controlling the situation (an abrupt change of state of the theme due to potential resistance of a single participant's force dynamics) in *-as* to the agent lacking control (a resultative state from a previous situation)[4] in *-ar-*. The morpheme *-e-* inherently bears a force dynamic nature in volitional verbs in (A) as well as in spontaneous verbs in (B). In (A) a two participant process depicts a canonical transitive structure with the morpheme *-e-*, while in (B) a force dynamic construal of a single participant process is presented without indicating the agentivity. In terms of argument structure, they are different, however in terms of "force dynamic", they are related regardless of their morphological category of transitivity (cf. Spanish "se" in Maldonado 1993).

As an inception verb, only *hajimeru* can occur as a full verb with a noun phrase as an object with an accusative case maker, while *-dasu* and *-kakeru* cannot. *Hajim-e-ru* has its intransitive morphological pair *hajim-ar-u* which also signifies the inception of an event, and both *hajimeru* and *hajimaru* are semantically transparent in their lexical context. Consider the following examples.

4. Taro wa jyugyu o hajim-*e*-ta/*d-*as*-ita/*kak-*e*-ta .
TOP class ACC begin-vt-PAST/take out-vt-PAST/hang-vt-PAST
'Taro began the class.'

5. Jyugyou ga hajim-_a_-tta/*d-_e_-ta/*kak-_a_-tta.
class NOM began-vi-PAST/go out-vi-PAST/hang-vi-PAST
'The class began.'

Thus, the stem, *hajim-*, semantically bears an inception meaning as its lexical content regardless of its transitivity, but the other two are derived from lexical items of action verbs involving direction *-dasu* 'take out: OUT' and *kakeru* 'hang something to: ACROSS' respectively. Sentences (4) and (5) with *hajim-* 'begin' can illustrate the same scene, but in (4), it is the agent who initiates a change of state and controls the process, and an object is marked with an accusative case and therefore (4) represents a canonical transitive construction, while (5) represents the state resulting from the previous event in (5) which is viewed holistically with an intransitive verb *hajim-aru*, representing a "perfect reading" (Comrie 1976) which indicates the resultative state.

Thus, (4) presents a canonical transitive construction with the morpheme *-eru* in *hajim-eru,* whereas (5) is a canonical intransitive construction with the morpheme *-aru* in *hajim-aru*. The differences between the cognitive coding process lie in the morphemes *-eru* in (4) and *-aru* in (5). I propose that both morphemes have their inherent semantic properties as follows.

> *-e-ru* "GET": an agent initiates a change of state and controls the process and maintains the continuous process.
>
> *-ar-u* "BE": the theme undergoes a change of state and results in the state from the previous event as a whole.

Hence, the morpheme *-e-ru* indicates prospective reading, while the morpheme *-ar-u* signifies perfect reading. Although Jacobsen has collected approximately 350 morphologically intransitive and transitive pairs and provides an in depth morphological analysis of these pairs, he has neglected a systematic careful examination of aspectual compound verb formation such as the interaction between each lexical content of verbs and transitive/intransitive morphemes respectively. There is no explanation given of the absence of an intransitive inception counterpart *hajimaru* in V2 in the previous analyses (Jacobsen 1992, Shibatani 1973, Kuno 1983). In fact, intransitive aspectual verbs hardly occur in inception despite the existence of morphological pairs as a full verb[5].

4. Intransitive Verbs and the Inception of an Event

The intransitive counterpart *hajim-ar-u* 'begin:vi' never occurs in the V2 position of the compounds. The lexical content of the stem *hajim-* is semantically transparent and indicates the lexical content of inception. What is blocking out the occurrence of the intransitive counterparts in V2 positions of the aspectual compound verbs? The most important fact conditioning the inceptional situation is a forward-oriented energy flow in terms of a force-dynamic construal. This conforms to the nature of canonical transitive characters, a change of state involving two participants, and one of them acts on the other and causes a change of state on the other. Moreover, there is a correlation between aspect and voice cross-linguistically (Comrie 1982)[6]. The morphological pairs of the group (A) such as *hajim-e-ru* and *hajim-ar-u* show transitivity alternation, i.e., the object of transitive becomes the subject of intransitive. Agent-orientedness of a transitive construction conforms to the inherent semantic properties of the morpheme *-e-* in (4) and (6a) and theme/patient-orientedness of an intransitive construction to those of the morpheme *-ar-* in (5) and (6b). Therefore, a rationale can be given for the absence of an intransitive counterpart in the V2 position: inception is a future-oriented time aspect; after the starting moment, the state remains. On the other hand, the morpheme *-aru* signifies an event as bounded entity, and as a natural consequence, it is incompatible with the inceptional situation, but it is compatible with termination. Consider the following examples again.

6a. Taro wa shukudai/renshuu o hajim-*e*-ta
TOP homework/practice ACC begin-vt-PAST
'Taro began the homework/practice.'

6b. ?Shukudai/renshuu ga hajim-*a*-tta
homework/practice NOM began-vi-PAST
'The homework/practice began.'

As long as the nouns *shukudai* 'homework' and *renshuu* 'practice' indicate a wholeness, they are compatible with the morpheme *-ar-* in *hajimaru*. The morpheme *-ar-* requires a subject as wholeness so that *renshuu* 'practice' designates an event but *shukudai* 'homework' allows two readings: one is an unbounded reading and the other is a bounded reading such as a whole course of homework in a semester. Also observable is a discrete initial point or a change of state in the latter case as in *renshuu* 'practice '. Thus, there is a correlation between the boundedness of the subject and the semantic properties of *-aru* which requires one to view a scene holistically. This semantic property of the morpheme *-ar-* is not compatible with the forward-oriented nature of the time-aspect segment of inception of an event. (See 1b and 2b). Next *dasu* and *kakeru* are examined as full verbs.

Kakeru[7] also belongs to group (A) with respect to a morphological alternation of transitivity like *hajimeru* vs. *hajimaru*. Consider the following examples:

7a. Rousoku ga *jyojyoni kie+kak-*a*-tta.
candle NOM eventually extinguish+ACROSS-vi-PAST
'The candle suddenly flared and nearly went out.'

7b. Rousoku ga jyojyoni kie+kak-*e*-ta.
candle NOM eventually extinguish+ACROSS-vt-PAST
'The candle was about to go out.'

Both these examples above present aspectual meanings. (7a) and (7b) can construe exactly the same scene, but there is a significant difference between them. (7b) permits two readings: one is that of flaring by external force such as wind, the flame was about to extinguish, but this reading still requires "sequential scanning" from the onset of change occurring to the flame to the state in which the flame remains as it was; and the other is that when a whole body of a candle is almost consumed or burned nearly to its end and has reached the bottom of the candle and only a wick is burning at the candle plate. (7a) cannot be used to describe the latter scene due to the inherent semantic properties of *-aru* which represents flame about to be extinguished as a momentary event. A conceptualizer construes a flame in (7a) as a momentary scene i.e., viewing the scene holistically due to the morpheme *-aru*, while in (7b) flaring is viewed as a process of burning act i.e., "sequential scanning" with the morpheme *-eru* which requires a durative reading. An adverb *jyojyo ni* 'eventually' is incompatible with (7a) which does not allow durative meaning at all. Thus, a morphological intransitive counterpart *kakaru* can occur in V2 of the aspectual compound verbs in (7a), but it profiles a very coda phase, i.e., and implies that the candle has almost reached the stage of being extinguished. Thus, this conforms more to a termination type of aspect phase rather than inception because of the morpheme *-ar-* which signifies a wholeness. The lexical content of the stem of *kekeru/kakaru* signifies the span of ACROSS, and therefore there are two points of ACROSS from source to goal and duration between these two points. *Kakaru* profiles the goal point of ACROSS.

5. The Selection of -Dasu *and* -Kakeru *as V2 in Inception Compounds*

There are significant aspectual differences among three of these verbs *hajimeru*, *dasu*, and *kakeru*. *Hajimeru* signifies a change of state and resultative state carried out , i.e., profiles the onset of inception and continuous process, while both *dasu* and *kakeru* profile a different phase than *hajimeru* from the point of view of spatio-temporal domains, because of their different lexical contents and different transitive morphemes *-e-* in *kakeru* and *-as-* in *dasu*, although both are action verbs which involve directionality or destination from a source to a goal, and represent a canonical transitive construal as full verbs. The agent initiates a change of state and the theme undergoes a change of location in terms of space domain which is mapped onto a change of state in terms of temporal domain.

5.1. Kakeru. Consider the following examples.

8. Taro wa bousi o boushikake ni kak-*e*-ta.
TOP hut ACC peg ALL hang-vt-PAST
'Taro hung his hat on the peg.'

9. Taro wa hana ni mizu o kak-*e*-ta.
TOP flower ALL water ACC hang-vt-PAST
'Taro watered the flowers.'

10. Iinkai wa singi ni jikan o kak-*e*-ta.
committee TOP discussion ALL time ACC hang-vt-PAST.
'The committee spent a lot of time on the discussion.'

All of these examples require an overt goal. The path between the original starting point such as Taro's head to the goal (peg) is marked with allative case. In (8) and (9), the agent initiates the action and as a result, the theme is moved to the goal by the agent's action in terms of space domain. For example, Taro initiates the action of hanging a hat on the peg and as a result the hat is on the peg in (8). *Kakeru* presents that the domain of space is mapped into the expression of more abstract relations from spatial domain in (8) and (9) to temporal domain in (10). Thus, *kakeru* encompasses its span between the source and the goal, i.e., ACROSS which is profiled. Therefore, *kakeru* profiles a different time-aspect phase of inception from *hajimeru*.

5.2. Dasu. Both *hajimeru* and *kakeru* belong to group (A) with respect to morphological pairs transitive *-e-* versus intransitive *-ar-*, while *dasu* belongs to group (B) which shows transitivity alternation with a transitive morpheme *-as-* versus an intransitive morpheme *-e-*. If the intransitive counterpart of *dasu* constitutes *-e-* in *deru*, and then why can *deru* not serve as an aspectual verb at all? Consider the following examples:

11a. Taro ga heya o d-*e*-ta.
NOM room from go out-vi-PAST
'Taro left the room.'

11b. Taro ga soto ni d-*e*-ta.
NOM outside to go out-vi-PAST
'Taro went outside.'

12. Fune ga minato o d-*e*-ta.
boat NOM port from
'The boat left the port.'

13. Konya wa mangetu ga d-*e*-ru.
tonight TOP full moon NOM appear-vi-NON-PAST
'Tonight, the full moon rises.'

Deru allows the scope of interpretation from entirely self-controlling agentivity which has internal energy flow as in a motion verb (11) to lacking of agentivity (13) in relevance to the nature of subjects. Thus, *deru* satisfies the definition of *-e-ru*, since a single participant initiates a change of its/his location (a self-induced change due to force-dynamic construal of the morpheme *-e-*) and carries out the continuous state in (11). But it is not transitive in terms of argument structure, although it appears to have syntactically a transitive structure, having a noun phrase immediately after the verb with *o* case marking in (11a) and (12) which is not an accusative case marker, functioning rather as an ablative case marker. Subjects in (12) and (13) are not sentient, but they undergo a change of location just as the human subject, Taro, does in (11a) and (11b).

What is common in all of these is a force-dynamic reading of a single participant process regardless of the agentivity of subjects, and a single participant moving from a source location such as *heya* 'room', *minato* 'port', or to a goal location such as *soto ni* 'to outside'[8]. All of them permit a single participant force-dynamic reading and could be good candidates to serve one time-aspect phase of inception. However, as far as *-eru* is concerned, the semantic properties of *d-e-ru* overlap with *hajim-e-ru* which is a semantically transparent inception verb depicting the initiation of a change of state and continuous process. Therefore it is paradigmatically redundant to describe the same time-aspect phase with *deru*. Moreover, since its intransitive counterpart *deru* has internal energy flow as a motion verb, it requires high energy input to cause an event to happen as in *kouri ga tok-e-ta* 'the ice melt vs. *watashi wa kouri o tok-as-ita* 'I melt the ice' with the transitive counterpart *dasu*. This results in an abrupt change of state, i.e., an extremely punctual onset time-aspect phase, since the agent has to deal with the resistance of the theme which has force-dynamic construal within itself in order to control over the theme. Consider the following examples:

14. Taro wa hako (no naka) kara keeki o d-*as*-ita.
TOP box (inside) from cake ACC take-vt-PAST.
'Taro took a cake out of the box.'

15. Taro wa neko o soto ni d-*as*-ita.
TOP cat ACC outside to take-vt-PAST
'Taro put the cat outside.'

16. Kono jiko wa shisha o gomei d-*as*-ita.
this accident TOP dead ACC 5 person take-vt-PAST
'This accident took a toll of five lives.'

The transitive counterpart *d-asu* of *deru*, which is lexicalized with a transitive morpheme *-as* which may be a variant of the causative morpheme *-sas-* (Inoue 1995), imposes an abrupt change of state on the theme. The most schematic meaning of *dasu* is a drastic change of location from the inside of a container to the outside. This is mapped onto a narrow focused punctual change of state of the theme in a temporal domain.

The agent takes the theme from the inside to the outside, and as a result the theme undergoes a change of location and results in being located at the goal, regardless of the theme's animacy in (14) and (15). In (15) the cat may or may not want to go out, but Taro causes the cat to be located outside of the house regardless of the cat's resistance or willingness. From the cat's perspective, it did not predict Taro's intention and therefore this is a sudden and abrupt change since it is out of the cat's control. The goal is not explicitly coded, but it is presupposed in terms of a sense of directionality from inside to outside. In (16), *kono jiko* 'this accident' the setting is a subject, which functions as a reference point to a conceptualizer, causing a change of state on the theme without a sense of agentivity, five people's lives which underwent a change of state. All of these themes undergo an abrupt or sudden change of state such as the transition from inside to outside in the spatial domain (concrete) or non-existing state to existing state, i.e., in the temporal domain (abstract), and all of them represent a relationship of causer-causee between the subject and the object. The theme undergoing a change of location is profiled in terms of a sudden change of state which is the most schematic reading of *dasu*, regardless of agentivity.

Thus, to describe the inception of an event, the realization of a change of state is linguistically coded with *hajimeru*, *-dasu*, and *-kakeru* in Japanese. As an inception lexical verb, *hajimeru/hajimaru* covers a representative time-aspect phase of inception, but it does not cover specific time segments which need other lexical items such as *-dasu* and *-kakeru*: a change of state should happen, which may involve durative time prior to the moment of a change of state (*kakeru*: ACROSS), or after the moment of change of state (*hajimeru*: 'begin:vt'), or at the very moment of a change of state (*dasu*: OUT). The morphemes (*-e-* and *-as-*) bear inherent semantic properties of a force dynamic reading which is compatible with the nature of inception i.e., forward-orientedness, and the verbs with these morphemes occur in V2 of aspectual compound formation. They are paradigmatically differentiated from one another as shown. These schematic meanings are mapped onto the aspectual compound verbs.

The summary of discussion above is presented as follows:

Inception

-as (vt)	**-*e*- (vt/vi)**	***-ar-* (vi)**	**meaning**	**function**
		hajim-ar-u	'begin'	
	hajim-e-ru			
		kak-ar-u	'hang'	ACROSS
	kak-e-u		'hang'	ACROSS
	d-e-ru (vi)		'go out'	OUT
d-as-u			'take out'	OUT

6. *Hajimeru*, *Dasu* and *Kakeru* in V2

6.1. -Dasu *vs.* -Hajimeru *in V2.* The lexical item *d-as-u* is morphologically complex, constituting the stem *d-* to which the transitive affix *-as* is attached, indicating that the emergence of the theme is manifested by external force. The transitive *dasu*, however, indicates a sudden change of state, i.e., an extremely punctual point of inception because, in its image schema, an external force is taking out something from the inside to the outside regardless of the volitionality of the theme. Consider the following examples:

17. Ame ga (?kyuuni) furi+hajim-*e*-ta.
rain NOM suddenly fall+begin-vt-PAST
'It (sudddenly) began raining.'

18. Ame ga (kyuuni) furi+d-*as*-ita.
rain NOM suddenly fall+begin-vt-PAST
'It (suddenly) started raining. (burst out raining)'

(17) and (18) could depict exactly the same scene, but a conceptualizer construes the scene differently. The sentence *ame ga furu* by itself does not indicate any sense of inception of the event. The sentence '*ame ga furu* (it rains)' is interpreted as the state of rain falling. By adding lexical items which have different lexical contents, the time-aspect of the inception can be differentiated; this is depicted in terms of the relationship between the profile (a specific punctual segment of the inception) and the base (*ame ga furu*). (18) indicates the starting point of raining which implies the immanent state of the process. This is compatible with the inherent semantic property of *-as* which implies a sudden change as opposed to a gradual change of *-e-*. The adverb *kyuuni* 'suddenly' co-occur with V1+*dasu* rather than with V1+*hajimeru*. Consider the following examples:

19. Ah ame ga furi+hajim-*e*-ta.
rain NOM fall+begin-vt-PAST
'Oh it began raining.'

20. Ah ame ga furi+d-*as*-ita.
rain NOM fall+begin-vt-PAST
'Oh!, it has started raining.'

Both are acceptable, but if a conceptualizer conceives of the situation unexpectedly, the metal state of being totally surprised at the first rain drop is conveyed by the interjection "*Ah*" which indicates the speaker's sudden realization. Then as a natural consequence, (20) will be uttered. It indicates a change of state is construed as an unexpected event. (19) involves not only the onset segment but also it carries out the state of raining, i.e., the continuity of the state, and therefore it is less compatible with a situation of a sudden change of state, or with an utterance of a sudden realization. Consider the following examples.

21. Ah mou arukerundesu-ka! Kono akachan itu aruki+d-*as*-ita-n desu ka.
ah, already can walk Q this baby when walk-OUT-vt-PAST-EMPH POL Q
'Oh your baby is walking now. When did s/he start walking?'

22. Ah mou arukerundesuka! Kono akachan itu aruki+hajim-*e*-tan desu ka.
walk+begin-vt-PAST-EMPH
POL Q
'Oh your baby is walking now. When did s/he start walking.'

23. Ah mou kurisumasu turii ga de+d-*as*-ita.
ah already Christmas trees NOM appear+OUT-vt-PAST
'Ah (all of a sudden) Christmas trees started appearing.'

24. Ah mou kurisumasu turii ga de+hajim-*e*-ta.
appear+begin-vt-PAST
'Ah Christmas trees started appearing.'

A baby has potential locomotion and when s/he actually starts walking; it is an entire change of state from non-walking to walking. This can be depicted either with *hajimeru* or *-dasu*. The inception of the baby's act of walking is simply coded with *hajimeru*, but *-dasu* represents a different conceptualization of the event, since it profiles a different time-aspect segment of the inception scope due to an abrupt change, i.e., extremely narrow focal point of the onset. The first step of walking signifies this point of the whole period of walking throughout his/her life. In (23), the speaker has suddenly realized the appearance of a Christmas tree in the show-window. His/her focal point lies in a sudden change of state with *d-as-u*. as opposed to (24) which indicates both a change of state and the continuity of the state. *Kakeru* as V2 cannot be used in these contexts as discussed next.

6.2. -Kakeru *in V2. Kak-e-ru* 'hang, impending' in V2 itself is not semantically an inception verb. It has a schematic meaning "ACROSS" of *kakeru* as shown above. Thus, *kakeru*, which constitutes the morpheme *-eru*, depicts an action toward the goal from a source and presents a schematic image of "ACROSS" which implies the span from a source to a goal in the spatial domain which is mapped onto the temporal domain within which action or activity can be canceled i.e., a non-attained goal. This spatial meaning serves as a specific time-aspect segment of the inception of the event. Therefore, it is not compatible with the contexts in (21) (22) (23) and (24) which share the attained goal. Consider the following example.

25. Taro wa sono shosetsu o itumo kaki+kak-*e*-ru/*hajimeru/*dasu
TOP the novel ACC write+be about to (vt)-NON-PAST
ga kakidashi ga nakanaka kimarazu kak-*e*-nai.
but the opening phrase NOM ready decided-NEG write-POT-NEG
'Taro is always about to write the novel, but the opening phrase cannot be decided easily, and consequently he cannot write it.'

Both *dasu* and *hajimeru* are not acceptable within this context, since they indicate that the event has been already exercised (started/began writing). On the other hand, *kakeru* is compatible with the situation in which the agent has not reached the state of writing, i.e., non-attained goal in (25). (25) denotes a scene in which the subject's act is in the state of taking a pen and putting a few letters on the writing pad, but not reaching the goal (the act of writing carried out), and results in the cancellation of the performance of the act. Thus, the specific time-aspect of *kakeru* signifies the scope of the inception in terms of the image schema "ACROSS" which profiles the impending temporary boundary from a source to a goal, and therefore the action toward the goal is in process, and yet which has not reached the goal (i.e., a non-attained goal). Hence even though the initial action, a change of state, has occurred, it can be also canceled within the durative time span (ACROSS). This semantic character is different from those in *hajimeru* or *-dasu*. Next, *hajimeru*, *-dasu*, and *-kakeru* are compared.

6.3. Hajimeru, -Dasu, *and* -Kakeru *in V2. Kaku* in (25) is a volitional act verb in V1 which involves the agentivity, while the following examples show some contradiction with the agentivity. All the V2 verbs only persist in aspectual meaning, i.e., "state." In other words, the agentivity is bleached out as subjectification increases with respect to grammaticalization. Consider the following examples.

26. Kyaku ga tuki+hajim-*e*-ta.
guests NOM arrive+begin-vt-PAST
'Guests began to arrive.'

27. Kyaku ga tuki+d-*as*-ita.
arrive+begin-vt-PAST
'Guests started to arrive.'

*28. Kyaku ga tuki+kak-*e*-ta.
arrive+be about to-vt-PAST
'A guest was about to arrive'

(26) and (27) present the scene which consists of a series of discrete events so that they permit only iterative reading. Each guest has control over his/her act of arriving. Once s/he arrives at the goal, then the event is completed as a single discrete one. In (26) and (27), we have to take a conceptualizer's viewpoint into consideration to construe the scene: s/he is looking at a series of discrete events in which each guest is arriving sequentially. The conceptualizer views the scene from "offstage", i.e., "subjectively construed". The difference between (26) and (27), *hajimeru* profiles a change of state and then continuous process, while *dasu* signifies the most punctual point of a change of state, i.e., unexpected suddenness or abruptness, and therefore, profiles an abrupt change of state, an extreme onset of the inception process. Therefore, (27) can co-occur with an adverb *kyuuni* 'suddenly'. In (26) and (27) , -*hajimeru* and -*dasu* serve as inceptional aspectual grammatical entities, and therefore the agent's control has been lost in the evolution of the grammaticalization path, but its state, either punctual or durative, which is profiled, has been carried out, i.e., the aspectual meanings persist. In the case of -*kakeru*, (28) is not acceptable, since *tuku* in V1 is an achievement verb which is incompatible with a non-attained goal-oriented *kakeru*. Consider the following examples which have non-sentient subjects:

29. Ame ga furi+hajim-*e*-ta.
rain NOM fall+begin-vt-PAST
'It began raining.'

30. Ame ga furi+d-*as*-ita.
rain NOM fall+begin-vt-PAST
'[All of a sudden] It started raining.'

31. Ame ga furi+kak-*e*-ta.
rain NOM fall+be about to-vt-PAST
'It was about to rain [The first drops of rain began to fall].'

The verb *furu* is an atelic verb as opposed to the verb *tuku* in (26) (27), and (28) which is telic. Therefore (31) is acceptable and implies a few rain drops fell, and then stopped because the semantic feature *kakeru* indicates a non-attained goal. All of these depict a different time-aspect of the inception of the event with a non-sentient subject "rain." (29) and (30) indicate that it began raining, but the profiled time-aspect segments of inception differ (see also (19) and (20)). In all these examples, the agent's control is irrelevant, but the state, which is profiled, has been carried out based on the different time-aspect segment, i.e., the aspectual meaning persists.

Thus, inception can be construed in several different ways in terms of time-aspect with transitive verbs: each lexical context of *dasu* and *kakeru*, which has its schematic representation OUT and ACROSS respectively: 'OUT' profiles an extreme onset segment of the event by a sudden change of state and the state remains unprofiled, while ACROSS profiles the temporal boundary within which the process can be canceled, i.e., an impending state. Both *dasu* and *kakeru* denote spatial domains as full verbs but in V2, they have a grammatical function in terms of aspectual meanings derived from its schematic meanings, i.e., OUT and ACROSS in the spatial domain which are mapped onto the temporal domain (cf. "cognition to grammar" (Heine 1992)). All of these inception verbs conform to "Sequential Scanning" with different time-aspect segments profiled. Thus, a closer examination of the semantic properties of the morpheme provides a rationale for zero occurrence of *hajimaru* 'begin:vi' in inception compound verbs and reveals the motivation of grammaticalization.

7. *Conclusion*

With respect to the inception verbs examined so far, all of them in V2 are exclusively transitive[9]. The inherent semantic properties of *-ar-* are reserved in the aspectual meanings in which the resultative state from the previous event is profiled as a whole. Thus, intransitive aspectual verbs (*hajimaru* 'begin:vi' and *owaru* 'finish:vi') represent the perfect reading. Therefore *hajimaru* can occur as a full verb, but its inherent semantic property of *-aru* is not compatible with forming inceptional aspectual compound verbs which need prospective-oriented nature.

This paper examines how the derivational morphemes *-e-ru* , *-as-* and *-ar-* interact with transitivity in the formation of aspectual compound verbs of inception within the framework of a cognitive semantic approach, showing that there is a rational correlation between the aspectual compound formation in inception and morphologically transitive counterparts in V2, regardless of the transitivity of V1, because of their inherent semantic properties. This paper also conforms to a general correlation between active voice and prospective aspect in terms of force-dynamic notions about the morpheme *-e-*.

NOTES

1. On the other hand, the termination verb *oweru* has only a transitive underlying structure and *owaru* has both. Shibatani sees these cases as an instance of a clash between morphology and syntax and claims that "morphological consideration is not reliable at all."

2. Comrie (1976) states that 'aspects are different ways of viewing the internal temporal constituency of a situation'.

3. This will be illustrated by Talmy's sense of "force dynamics," – "how entities interact with respect to force" (1988) .

4. However, this cannot be "imperfective", for example, in the case of *ag-ar-u* 'raise' it expresses motion of a single participant. It is important to construe motion of rising holistically, not configurationally. Therefore, an event reading is taken for verbs with the morpheme *-ar-*.

5. In the case of the intransitive termination verb *owaru* which contains the morpheme *-ar-*, even though it occurs three times more frequently than its transitive counterpart *ow-e-ru* (Kokken Compound Verb Corpus 1978) as opposed to zero occurrence of *hajim-ar-u* 'begin:vi'.

6. Delancey (1982) also claims a similar view about the correlation between patient-oriented patterns and perfective aspect, and agent-oriented patterns and imperfective aspect or future tense in terms of the aspectual split ergative patterns.

7. Although Jacobsen does not consider the intransitive counterpart *kakaru* as an auxiliary in the aspectual compound forms, it is treated as one of aspectual compound verbs among many others (Kindaichi 1976).

8. Cf. Jacobsen's terms (1992) "intentional intransitivity".

9. In contrast, the termination verbs are dominantly intransitive verbs *owaru* 'finish'.

REFERENCES

Delancey, Scott. 1982. "Aspect, Transitivity and Viewpoint." In J. Hopper (ed.), *Tense-Aspect: Between Semantics and Pragmatics*. Amsterdam: Benjamins

Givon, Talmy. 1994. "The Rise of the English GET-Passive." In: Barbara Fox and Paul Hopper, eds., *Voice, Form and Foundation*. Amsterdam: Benjamins

Heine, Bernd, Ulrike Claudi, and Friederike Hünnemeyer. 1991. *Grammaticalization*. Chicago: University of Chicago Press.

Heine, Bernd. 1992. "Grammaticalization Chains." *Studies in Language* 16:335-368.

Inoue, Kazuko. 1976. *Henkei Bunpoo to Nihongo* [Transformational Grammar and Japanese]. Tokyo: Taishuukan.

Inoue, Kazuko. 1995. "Tadousei to Shiekikoubun." [Transitivity and Causative Construction]. In: M. Tokunaga ed., *Gengohenyouni kansuru Taikeitekikenkyuu oyobi sono Nihongokyouiku e no Oouyou* [Systematic Studies about Language Change and its Application to Japanese Language Education]. Tokyo: Research Reports

Jacobsen, Wesley. 1992. *The Transitive Structure of Events in Japanese*. Tokyo: Kuroshio shuppan.

Kageyama, Taro. 1993. *Bunpoo to Gokeisei* [Grammar and Word Formation]. Tokyo: Hitsuji shobo.

Kokken Compound Verbs Corpus 1987

Kuno, Susumu. 1983. *ShinNihon Bunpoo Kenkyuu* (New Studies in Japanese Grammar]. Tokyo: Taishuukan.

Kuno, Susumu. 1987. "Honorific Marking in Japanese and the Word Formation Hypothesis of Causative and Passives." *Studies in Language* 11:99-128.

Langacker, Ronald. 1987. *Foundations of Cognitive Grammar vol.1.Theoretical Prerequisites*. Stanford: Stanford University.

Langacker, Ronald. 1990. "Subjectification." *Cognitive Linguistics*. 1: 5-38.

Langacker, Ronald. 1991. *Foundations of Cognitive Grammar vol. II. Descriptive Application*. Stanford: Stanford University.

Langacker, Ronald. *On Subjectification and Grammaticization*. In press.

Mardonado, Richardo. 1993. "Dynamic Constuals in Spanish." *Studi Italiani di Linguistica Teorica e Applicata*, anno XXII, numro 3.

Matsumoto, Yo. 1992. *On the Wordhood of Complex Predicates in Japanese*. Doctoral dissertation, Stanford University.

Okutsu, Keiichiro. 1976. Jidoushika, Tadoushika oyobi Ryoukyokuka tenkei – Ji/Tadoushi no Taiou – [Patterns of Intransitivization, Transitivization, and Bipolarization]. *Kokugogaku* 70:46-65.

Shibatani, Masayoshi. 1973. "Where Morphology and Syntax Clash: A Case in Japanese Aspectual Verbs." *Gengo Kenkyuu* 64: 65-96.

Shibatani, Masayoshi. 1985. "Passives and Related Constructions: A Prototype Analysis." *Language* 64: 821-848.

Talmy, Leonard. 1985. "Force Dynamics in Language and Thought." *Papers from the 21th Regional Meeting of Chicago Linguistic Society*. 2:293-337

Talmy, Leonard. 1988. "Force Dynamics in Language and Cognition." *Cognitive Science* 12: 49-100.

Traugott, Elizabeth. 1995. "Subjectification in Grammaticalisation". In: D. Stein and S. Wright (eds.), *Subjectivity and Subjectivisation*. New York: Cambridge University Press.

V

SEMANTICS

SOME AS AN EXPRESSION OF APPROXIMATION IN ENGLISH: FROM PARTITIVE TO APPROXIMATIVE

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English possesses various devices for expressing approximation with numerical expressions. The higher numerals often add the word *odd* to indicate that a number is a little higher than that denoted by the numeral (cf. Jespersen 1940:586):

(1) at the age of fifty odd

The contrast with *even*, which would suggest a precise number, shows that the notion of a quantity being left over after all the other members of the set are paired is used here to indicate that 'fifty' does not correspond exactly to the real number of years, but that a bit more has to be added in order to reach this figure. Another way of adding a small undetermined quantity to a determinate one to obtain an approximation is to add *or so* or *or two* (cf. also Jespersen 1940:587):

(2) a mile or so

(3) within the next hour or two

To express approximation one can also simply adjoin a preposition such as *around* or *about*, which situates the number referred to in the vicinity of the value corresponding to the precise cardinal number following the preposition:

(4) He was around/about forty.

If one prefers morphology to syntax, one can affix the adjectival suffix *-ish* to a cardinal number and utilize its signification of 'not quite *x*, but giving the impression of *x* in some ways' to produce an approximative sense, as in:

(5) He was fortyish.

As can be seen from the diversity of the linguistic means used to express it, approximation is not a linguistic category but rather a referential one.

The literature on approximatives has been the scene of a debate between a "radically pragmatic" approach such as that proposed by Sadock (1981) and a "radically semantic" approach such as that defended by Wierzbicka (1986). The former offers a truth-functionally defined 'meaning' corresponding to approximatives in general and relies heavily on Gricean pragmatic principles to do most of the work of accounting for the overall message expressed by the utterance. The latter attempts to explain as much as possible through the semantics of the words, claiming that even the vaguest hedges and approximatives can be given rigorous semantic explications which correctly account for their use. While I would not fully share Wierzbicka's unconditional optimism that the meaning of all words can be adequately stated by means of paraphrases (1986:596), as one word or combination of words can never be the exact equivalent of another, I do subscribe to the position that one must take a serious shot at defining the conceptual content of a word before having recourse to general pragmatic principles to explain how it can be used to convey certain messages. Indeed the over-reliance on pragmatics is the direct consequence of an impoverished view of semantics, which reduces the latter to only the truth-functional aspects of meaning. This being said, it is not my purpose here to go into the problem of what must be attributed to the semantic component and what to the pragmatic in order to account for the behaviour of approximatives in general. Rather I will be concerned with the much more specific problem of how a word which appears to function as a partitive, namely *some* (cf. Sahlin 1972:42, Hirtle 1988:462–67), can produce the impression of approximation when used with a cardinal numeral.

Before getting to that question, however, I must first rectify the impression given by the dictionaries and grammars of English that the use of *some* with a numeral always produces the effect of approximation. In the data which I have been able to examine, there are a number of uses where this does not seem to be the case. Two such contexts are given in (6) and (7):

(6) The present Federal program of vocational education began in 1917 with the passage of the Smith-Hughes Act, which provided a continuing annual appropriation of $7 million (...). Since 1917 some thirteen supplementary and related acts have extended this Federal program. The George-Barden Act of 1946 raised the previous increases in annual authorizations to $29 million in addition to the $7 million under the Smith Act. The Health Amendment Act of 1956 added $5 million...
(Brown U. Corpus J38 0100 6)

(7) The phrase is used some twenty-nine times in this book, but not elsewhere ...
(Lancaster-Oslo-B. Corpus D03 12 5)

Here the speaker's communicative goal does not appear to be merely that of suggesting that the figures given are imprecise, although the use of *some* does allow the introduction of a slight hedging effect. *Some* is also used here to exploit other aspects of its meaning-potential. In order to see these more clearly, and also to situate the approximative use with respect to the partitive, the general nature of *some*'s meaning must now be discussed.

Following Hirtle 1988, I will assume that *some* can be treated as being basically partitive in meaning: it evokes a specific but non-specified part taken out of a whole. *Some* can be opposed to *any* in that it denotes the real extraction of such a part from the whole, while the latter denotes only possible extraction. This distinction can be observed most clearly in affirmative contexts, where one can imagine pairs such as:

(8a) Their dog ate some scraps of food he found in an uncovered garbage can.

(8b) Their dog ate any scraps of food he found in an uncovered garbage can.

Where the sentence with *some* denotes a quantity really found and eaten, the one with *any* covers the various possibilities of discovery and ingestion. The distinction just alluded to also accounts for the affinity of *any* for non-assertive contexts and of *some* for assertive ones.

In actual fact, it is not *some* by itself which evokes the part extracted from the whole however, but rather *some* + the following noun. This can be seen from the fact that the grammatical number of the noun following *some* evokes the manner in which the part is represented and not the way the whole is conceived. Thus in (9) the plural ending on the noun indicates reference to a plural part:

(9) Some boys were riding down the sidewalk on their skateboards.

In (10), on the other hand, the singular noun denotes the fact that the part extracted from the whole is singular:

(10) Some boy was riding down the sidewalk on his skateboard.

As for the whole of which *some* + Noun denotes a part, in most cases it is generic, as in (9) and (10) above. It is also possible for it to be specified by the context, as in this example quoted from Sahlin (1979:16):

(11) They had divided the Congo into six provinces – Leopoldville, Kasai, Kivu, Katanga, Equator and Eastern – unfortunately with little regard for ethnic grouping. Thus some provinces contained tribes which detested each other, and to them independence meant an opportunity for war.

The ability to occur with both singular and plural nouns shows that the meaning of *some* is essentially non-quantitative. The evoking of a specific but non-specified plural part, however, does produce an impression of indefinite quantity, as can be seen in (9).[1] On the other hand, the quantity is definite in (10), where there is only one boy in question. Here *some*'s meaning presents the individual in question as specific but non-specified, which accounts for the slightly demeaning tone of *some* in this type of use.

A final point concerning the role of accentuation must be brought in to complete the picture. The specific but non-specified quantity which *some* by itself evokes can be skewed upwards or downwards according to context and stress pattern, besides being evokable in a purely neutral manner. A sentence illustrating the neutral case would be something like (12), with unaccented some:

(12) There was still some time left, so I checked my paper over before I handed it in.

A different intonational pattern, with stress bearing on *some*, can be used to indicate however that the quantity evoked by *some*, while really existing, was minimal in extent:

(13) There was still some time left, but hardly enough to go over my whole paper.

The third case involves a similar intonational pattern to that found in (13), except that here the quantity expressed by *some* is felt to be of considerable size or importance:

(14) It was some time before I saw her again.

With this very summary depiction of *some*'s meaning in mind, we can now attempt to address the problem at hand – showing the relation between *some*'s use as a partitive and the expression of approximation. No uses of this type have been cited as yet, and so it would be *a propos* to give some at this point:

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[1] The same thing is true of non-countable usage, as in *There was still some gas left in the tank*.

(15) The club consists of some 40 members.
(OED, sub *some*)

(16) Some fourteen or fifteen years ago, in an essay I called *The Leader Follows – Where?* I used his polarity to illustrate what I thought had happened to us in that form of liberalism which we call Progressivism.
(Brown U. Corpus G21 0260 1)

(17) A nuclear pacifier of these dimensions — roughly some six and a half times bigger than anything the United States has triggered experimentally – would certainly produce a bigger bang...
(Brown U. Corpus B03 1300 5)

The overwhelming majority of this type of use occurs with round numbers, i.e. either simple multiples or simple fractions of the base numbers of the decimal system (cf. Lotz 1955), as in (15) above. In a few cases *some* is combined with other indicators of approximation modifying more precise numerals, as in (16) and (17).

In order to understand the role of *some* in signifying approximation, it is necessary to compare *some* to other determiners which do not produce this impression. The following examples illustrate the contrast between *some* and both the article and the demonstrative:

(18a) Some 50 villages agreed to the plan.
(18b) The 50 villages agreed to the plan.
(18c) Those 50 villages agreed to the plan.

With the definite article in (18b), reference is made to a specific group of villages set off from other villages which the concept could refer to and this set is characterized quantitatively by the numeral as being 50. Similarly in (18c), the demonstrative evokes a group of villages seen as situated outside the speaker's sphere, and the numeral quantifies this set as being 50 as well. In the case of *some* on the other hand, what is it that produces the impression of 'approximately 50' perceivable in (18a)?

The answer to this question is to be found in the effect produced by the meaning of *some* as it has been described above in combination with the quantitative notion expressed by the numeral. *Some*, for its part, evokes a specific but non-specified quantity of villages, as it does in (19):

(19) There were indeed some villages that agreed to the plan.

The numeral, for its part, characterizes this quantity as being 50. The result of the interaction between these two notions is to represent 50 as an approximate figure by evoking it as a number which corresponds to a non-specific quantity. This explains why the numeral following *some* must be interpretable as a round number in this type of use.

It was pointed out above, however, that this is not the only type of meaning expressed by the sequence *some* + cardinal numeral. A second question must be answered then in order to provide a complete view of the interaction between these two types of quantifying determiners: how is it that *some* + numeral can also be used to express a precise quantity, as in (6) and (7) cited earlier?

It should be noted in this respect that whereas all of the uses found in which *some* expresses bare approximation are unaccented (cf. (15) – (17) above), the uses illustrated in (6) and (7) receive some degree of stress. This relates them to the type illustrated in (14), where the extensity evoked by stressed *some* is understood to be of considerable size or importance. The only difference is that in (6) and (7) this extensity is also quantified more precisely by the numeral. The result is the message that the thirteen supplementary and related acts extending the government's spending power referred to in (6) is presented as a considerable number and, in the case of (7), that the twenty-nine occurrences of a phrase not found elsewhere in this author's writings is implied to be a surprisingly high frequency for the one work in which it does occur. Another possible analysis of this use in that *some* is being used to evoke a certain quantity which may not be exactly thirteen or twenty-nine but is close to these unexpectedly high orders of magnitude, the latter being the main point that the speaker wants to get across. Whatever the case, one cannot simply say that *some* is expressing mere approximation in such sentences, as the notion of a higher than expected quantity seems to be the dominant impression.

The exploration of this tiny corner of usage in English does not warrant the drawing of any very grandiose conclusions. One observation might be made in closing however: what has been seen here in the case of *some* provides a case in point of just how complex and unforeseeable the interaction of linguistic meanings can be, in the sense that two notions which might appear at first blush to be logically incompatible – the unspecified quantitative impression evoked by *some* in use with a plural noun and the precise quantity evoked by a cardinal numeral – are combinable in natural language to express the notion of an approximation. Even more amazingly, moreover, the same two notions can also be combined to evoke a precise quantity, if *some* is used with an intonational pattern indicating that the quantity it denotes is represented as being of considerable or greater-than-expected size. These phenomena speak strongly in favour of an approach to language which goes and looks at what is really out there, and caution one against an overly logical approach which presumes to know what is grammatical without first going through the indispensable phase of observing what people actually say when they speak.

REFERENCES

Brown University Corpus of American English. 1961. ed. by W.N. Francis and H. Ku(era. Providence, RI: Department of Linguistics, Brown University.

Hirtle, Walter H. 1988. "*Some* and *any*: exploring the system." *Linguistics* 26, 443-77.

Jesperen, Otto. 1940. *A Modern English Grammar*. Part VIII. London: George Allen and Unwin.

Lancaster-Oslo-Bergen Corpus of British English. 1978. ed. by S. Johansson, G.N. Leech and H. Goodluck. Oslo: Department of English, Oslo University.

Lotz, J. 1955 [1964]. "On language and culture." *International Journal of American Linguistics* 21. Reprinted in D. Hymes (ed.) *Language in Culture and Society*. New York: Harper and Row, 182-4.

Sadock, Jerrold. 1981. *Almost. Radical Pragmatics*, ed. by Peter Cole. New York: Academic Press, 257-71.

Sahlin, Elizabeth. 1979. *Some and Any in Spoken and Written English.* Stockholm: Almqvist and Wiksell.

Wierzbicka, Anna. 1986. "Precision in Vagueness. The Semantics of English 'Approximatives'." *Journal of Pragmatics* 10, 597-614.

ALTERNATING SEMANTIC POLARITIES

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1. Lexical Semantics and System-wide Interplay

Meaning is assigned on the lexical level not so much as a direct link between signifier and signified, but through the mediation of system-wide contrasts. Even for rather concrete, naturally occurring phenomena, the meaning of a particular lexical label is very much delimited by other lexemes that cover similar referents. Thus English stone acquires some of its semantic boundaries by contrast with *rock*, *pebble* and *boulder*. It does not matter whether the lexeme covers a process or an event, the same principle applies. English *hop* has its meaning delimited by *jump*, *skip* and *bound*. When it comes to polar opposites or relational pairs, the dependence of one meaning on another is even more pronounced. General concepts such as 'long' and 'short', in any language, are thoroughly relative. One does not know whether an item is 'long', except in relation to some other item, which is its 'short' equivalent.

When an element of polysemy is added to a pair of words that take their meaning from a contrast or relation, even more of the semantic content is dependent on the particular lexical scheme that a language employs. This paper will explore the mismatches in lexico-semantic assignment between Hebrew and English terms that concern relational concepts and polar opposites. The exploration will have useful applications to translation theory, bilingualism and language pedagogy.

2. Polar Opposites with Polysemous Antipodes

Adjectives measuring relative states along polar axes sometimes serve double functions. Thus English *hard* can be the opposite of *soft* or the opposite of *easy*. English *hot* can be the opposite of *cold* or of *mild*.

In (1), below, eight pairs of polar opposites in English and Hebrew are set forth. The general meaning of the concepts is very much equivalent from one language to the other, but the double duty that some lexemes serve, in contrast to others, is very distinct.

(1) Comparative Alternating Simplex Polarities

English	**Hebrew**
(a). Young (Old)	(א). צעיר (זקן) *ca'ir (zaqen)*
(b). New (Old)	(ב). ב (ישׁן) xadaš (yašan)
(c). Cold (Hot)	(ג). קר (חם) *qar (xam)*
(d). Mild (Hot)	(ד). לא חריפ (חריפ) *lo xarif (xarif)*
(e). Soft (Hard)	(ה). רך (קשׁה) *rax (qaše)*
(f). Easy (Hard)	(ו). קל (קשׁה) *qal (qaše)*
(g). Heavy (Light)	(ז). כבד (קל) *kaved (qal)*
(h). Dark (Light)	(ח). כהה (בהיר) *kehe (bahir)*

The English pairs have a very consistent polysemous second element. Thus English *old* can be the opposite of *young* or of *new*, English *hot* is the opposite of *cold* or *mild*, English *hard* contrasts with either *soft* or *easy*, andEnglish *light* is the polar counterpart of either *heavy* or *dark*. Hebrew employs less polysemy in the listed semantic oppositions. Only three pairs share an element. קשׁה [qaše] is either the opposite of רך [rax] 'soft', or קל [qal] easy. But קל [qal] is not merely the opposite of קשׁה [qaše] 'difficult', it also contrasts with כבד [kaved] 'heavy'.

The practical result of such rampant polysemy is not as pronounced as one might expect. In most cases, context entirely disambiguates the utterance,and there is no question as to which concept is involved. Out of context, or when the context is insufficient, speakers can employ the nonpolysemous member of the pair in order to identify which conceptual contrast is implied, as in the exchange in (2) below.

(2)

SPEAKER A: Be careful, that soup is very hot.
SPEAKER B: How do you mean?
SPEAKER A: Not cold.

While the above exchange may be a bit contrived, the fact remains that where one element is polysemous, the functional load of the semanticdichotomy is carried by the lexeme marking the other pole of the binary opposition. It would be very unlikely for any language to mark both poles of two different binary oppositions with the same contrasting lexemes as in (3).

(3) *

(a) XXX 'hot' <--------> YYY 'cold'
(b) XXX 'hot' <-------> YYY 'mild'

A lexical pattern such as suggested in (3) is not likely to occur in the first place, and were it to materialize later on in the history of a language, it would be immediately altered to create a contrast on at least one end of the opposition. On the other hand, a chain effect, as in (4), can and does occur.

(4)
  (a) XXX 'soft' <--------> YYY 'hard'
  (b) YYY 'hard' <-------> ZZZ 'easy'
  (c) ZZZ 'light' <-------> AAA 'heavy'

The chain in (4) is in fact a more abstract notation for the phenomenon that occurs in Hebrew in (1) (ה), (ו) and (ז). Note also that if one of the sides of the polar opposition has no label, then it is marked by negating the labelled side.

(5) XXX 'piquant' <------> NEG XXX 'mild'

In (5) we have a slightly more formal version of the Hebrew opposition in (1)(ד). This phenomenon is indicative of the fact that polar opposites are indeed conceptualized by speakers as binary oppositions with either negative or positive polarity, such that the opposite of XXX is NOT XXX. When one side of the opposition is either unmarked or ambiguously marked by a polysemous lexeme, speakers will use the lexeme at the other pole, which is labelled or monosemous, as a reference point, as demonstrated in (2) and (5) above.

3. Ambiguity in Relational Pairs and Alternating Complex Polarities

A similar phenomenon can be found in nouns that double as indicators of more than one category. The English word *child* can either be a member of the PARENT/CHILD relational pair, or the younger end of the ADULT/CHILD dichotomy. In non-feminist English, *man* indicates either a human member of the HUMAN/ANIMAL opposition, the male in the MALE/FEMALE opposition, where human is understood, or an adult male human as opposed to a child male human.

(6)
  (a) man <---HUMAN/ANIMAL-------> beast
  (b) man <---MALE/FEMALE---------> woman
  (c) man <---ADULT/CHILD----------> boy

In Hebrew, where grammatical gender plays an important role, such oppositions tend to split along different lines. There are two roots for OFFSPRING/YOUNG that enter into this split: בן /b-n/ and ילד /j-l-d/. Each can be used for nouns in both feminine and masculine. ילד [jeled] and ילדה [jalda] are usually glossed into English as 'boy' and 'girl', but a more accurate rendition would be that they are the masculine and feminine 'child' of the ADULT/CHILD dichotomy. בן [ben] and בת bat] are the masculine and feminine of 'child' from the PARENT/CHILD relational pair. (Grammatical gender and biological sex correspond in the usage of such terms.)

While אמד\חיה [adam/xaja] is the HUMAN/ANIMAL opposition, אישׁ\אשׁה ['iš/'iša] are merely masculine and feminine versions of the adult side of the human ADULT/CHILD dichotomy, and גבר\אשׁה [gever/'iša] mark the MALE/FEMALE opposition, as applied to human adults.

(7)

(a) אדם [adam] <---HUMAN/ANIMAL-------> חיה [xaja]
(b) גבר [gever] <----MALE/FEMALE--------> אשׁה ['iša]
(c) אישׁ ['iš] <------ADULT/CHILD---------> ילד [jeled]
(אשׁה ['iša] <----ADULT/CHILD----------> ילדה [jalda])

Observe that while English tends to express relational oppositions entirely in terms of whole lexemes, Hebrew uses roots and grammatical gender as a means to code the same information. The word *boy* is an indivisible whole. One cannot ascribe any particular portion of the meaning of *boy* to any of its phonological parts. The word is monomorphemic, and its counterpart *girl* is equally so. The fact that the meaning of *girl* is the female equivalent of the meaning of *boy* is something speakers memorize as part of their lexicon. There is no way to deduce this from the form of the words.

On the other hand, Hebrew assigns general lexical information to its roots. So the root that the lexemes for 'boy' and 'girl' share consists of the three consonants ילד. This root is the same one in the verb 'to give birth', and the word for 'boy' and 'girl' have the vocalization to indicate that they are nouns whose gender is masculine and feminine, respectively. In the plural, the masculine form can indicate a group of male children, or any group of which at least one member is a male, following the principle of generic masculine. As a result, there is no need for a general word like the English *child* when used as a minor whose sex is not indicated.

(8) Comparative Alternating Complex Polarities
(a) ENGLISH
(I) boy-------HUMAN(NOT ANIMAL) + MINOR(NOT ADULT) +MALE

(II) child------- MINOR(NOT ADULT) or OFFSPRING(NOT PARENT)
(III) son------- OFFSPRING(NOT PARENT) +MALE

(b) HEBREW
(I) ילד [jeled]---- HUMAN(NOT ANIMAL) + MINOR(NOT ADULT) +MALE
(II) בן [ben]------- OFFSPRING(NOT PARENT) +MALE

There is less ambiguity when referring to 'children' in Hebrew, since ילדים [jeladim] means minors (people who were born not too long ago), whereas בנים [banim] means offspring. However, there is room for some semantic play.

Which particular lexeme is used depends on one's frame of reference. Thus Israeli schoolchildren prefer to speak of themselves as 'sons vs. daughters' rather than 'male vs. female children'. That is, they avoid the ADULT/CHILD root (ילד) in favor of the root of the PARENT/CHILD opposition (בן), when they distinguish between males and females all of whom are under age. Only when they are comparing themselves to adults do they readily use the root reserved for the the ADULT/CHILD dichotomy.

4. Implications for Translation Theory and Language Pedagogy

Lexical choice is constrained in each language by the available alternatives. By the same token each language affords its own unique set of contrasts. The connotative flavor of a lexeme is often directly derived from the denotative contrasts available. This can have intriguing consequences when going from one language to the next. It is not entirely possible to express the same information with the exact same connotative flavoring in two unrelated languages.

The use of generic masculine, for instance, is felt by many speakers of English to imply preference for male participants. The feel in Hebrew is quite different, due to the grammatical framework of the language. No such implication is ascribed.

An example can be found in the Hebrew words for man and woman and their various implications. While in Hebrew the words אישׁ\אשׁה ['iš/'iša] 'man/woman', (7)(c) above, are merely masculine and feminine versions of the adult side of the human ADULT/CHILD dichotomy, and the plural masculine אנשׁים ['anašim] is often used merely to mean 'people', there is no implication that a woman is less a prototypical person than is a man. In fact, an examination of the contrastive pair גבר\אשׁה [gever/'iša] 'man/woman', (7)(b) above, will show that a woman is somewhat more prototypical a person than a man. Example (9), below, is a typical contrastive use of גבר [gever] and אשׁה ['iša] in Biblical Hebrew.

(9) Deuteronomy 22:5
לא יהיה כלי גבר על אשה ולא ילבשׁ גבר שׁמלת אשה
lo jeheje kli gever ‘al ‘iša welo jilbaš gever simlat ‘iša
not be instrument man on woman and-not wear man dress of woman
‘There will be no article of a man on a woman and a man will not
wear a woman’s clothing.’

Since גבר [gever] means a manly man, and is used to stress that the person referred to is male, rather than female, there is actually a slight implication that maleness is less prototypical.

This is not to imply that using the less contrastive pair of אישׁ/אשה [‘iš/’iša] in the singular is not possible. The token/type dichotomy is a helpful explanatory tool here. The use of אשה and אישׁ in the same sentence is associated with sex distinctions between tokens of the same type, while contrasting גבר [gever] and אשה [‘iša] highlights type differences. In (10) below both the word for ‘man’ and the word for ‘woman’ are from the general adult person root. They are both equally people and equally adult, but the feminine version is included, because the principle of generic masculine is inapplicable to individual tokens in the singular.

(10) Leviticus 13:29
ואישׁ או אשה כי יהיה בו נגע בראשׁ או בזקן
we-‘iš ‘o ‘iša ki jehje bo nega’ baroš ‘o bazaqan
and-man or woman if be-imp. in-him sickness in the head or in the beard.
‘And a man or a women if there be in him a sore on the head or the beard.’

The main difference between (9) and (10) above, is that in (9) it matters whether a man or a woman is involved, and in (10) it does not matter.

In the case of plurals, the inclusion of one member of the masculine contingent is enough for the entire group to be described. In example (11) we see a Modern Hebrew usage of inclusive generic masculine plural and contrastive plural, where the speaker intentionally distinguishes males and
females.

(11) כל האנשׁים באו: גם הגברים וגמ הנשׁים.
kol ha’anašim ba’u: gam hagvarim ve-gam hanašim.
all the-men(people) came: also-the-men(males) and also the women.
‘All the people came: both the men and the women.’

A similar usage is made in the following Biblical sentence:

(12) Jeremiah 44:20
ויאמר ירמיהו אל־כל־העם על העברים ועל הנשׁים ועל־כל־העם
wajomer jirmijahu el kol ha'am 'al hagvarim we'al hanašim we'al kol ha'am
said Jeremiah to all the-people on the men and-on the-women
and-on all-the-people
'Jeremiah said to all the people, the men, the women and all the people.'

The root of נשׁים [našim] 'women' is the same as for a generic man/person, meaning adult human, but the root for גברים [gvarim] has to do with their virile property of overcoming or overpowering others. It is the same root as the one for bravery. Because there is no separate root to indicate femininity, and the words אשׁה ['iša] and נשׁים [našim] do double duty for both the contrastive and inclusive meaning of 'woman', there is a slight implication that ordinary personhood is automatically ascribed in the case of the women, more so than with men.

For purposes of language pedagogy, because the semantic allocation is so different between English and Hebrew, this creates problems for the translation of seemingly very simple sentences. So Lambdin (Lambdin 1971.16), when he asks beginning Biblical Hebrew students to translate the English sentence in (10), sets up an odd exercise in mismatched semantics. The students know only the generic words for man and woman. They have not yet been introduced to גבר [gever]. Their only option is to give version (ב), which has the odd implication that the women are not actually people. (Otherwise why was generic masculine not used, merging both the men and the women into one group.). Version 13 (א), which is the more appropriate translation, is not yet available to the student this early in the textbook.

(13) From English to Hebrew:
'The men and the women are on the road.' (Lambdin 1971.16)
(א) hagvarim wehanašim 'al haderex. (א) הגברים והנשׁים על־הדרך
the-men(not women) and the women are on the road.

(ב)? ha'anašim wehanašim 'al haderex. ? (ב) ? האנשׁים והנשׁים על=הדרך
the men (not children or animals) and the women are on the road.

Admittedly, the Old Testament has six instances of the phenomenon of a conjunctive use of אנשׁים ['anašim] and נשׁים [našim], namely in Deuteronomy 31:12, Judges 9:51, Judges 16:27, Nehemiah 8:3, Jeremiah 40:7 and Ezra 10:1. In three of these instances the collocation 'men, women and children' was used, and in two of those the word for children was a mass noun, not a count noun: אנשים נשים וטף, ['anašim, našim wetaf].

By using the terms אנשים ['anašim] and נשים [našim] in a conjoined listing, the writer was making a statement about how men and women were categorized in those particular contexts. For instance, where a contrastive use was made of גברים [gvarim] 'men', נשים [našim] 'women' and טף [taf] 'children, collectively', the logical bracketing implied is: {MEN}, {WOMEN} and {CHILDREN}. Where אנשים נשים וטף ['anašim, našim wetaf] is used, the bracketing implied is: {MEN} and {WOMEN AND CHILDREN}. By the same token, where only the two terms אנשים['anašim] and נשים [našim] are conjoined contrastively, there is in fact an implication that for purposes of that particular census, women do not count as 'people', in the legal and practical sense that they are a subgroup of dependents who do not serve a military purpose and cannot be a head of household.

Lakoff's ICM's, idealized conceptual models, seem applicable to this discussion. For most purposes, Biblical Hebrew classifies women and men as tokens of the type PERSON. The conceptual model in question at any given point may or may not be completely consistent with the model used for some other purpose. (Lakoff 1987). What does remain consistent is the lexico-semantics of the lexeme אנשים ['anašim] as 'people', rather than 'men'. Since the lexeme נשים [našim] serves double duty as the feminine plural form of אנשים ['anašim] and also as the contrastive polar opposite of גברים [gvarim], when אנשים ['anašim] and נשים [našim] are used in conjunction, the proper interpretation of נשים [našim] is as the opposite of גברים [gvarim], by reason of the generic masculine principle that applies to plurals. If the co-equal of אנשים ['anašim] had been intended, the two words from the same root would not be used, because אנשים would include נשים in that case.

Lambdin's exercise cited in (13) above with its contrastive translation cannot be termed "wrong," because given an appropriate context, such a usage might have been made in Biblical times. The reason it is misleading for students is that coming from the English text they have no particular expectation that an unusual statement about the categorization of men and women is being made here. It is an inauspicious beginning that can mislead new students about the norms of Hebrew lexico-semantics, and it paves the way to many future errors concerning other lexical choices.

Another difficulty is experienced in the opposite direction, when the English term *children of Israel* is routinely used for בני ישראל [bnej jisra'el]. It would be pointless to say that such a translation is "wrong," since it is standard usage in English. Perhaps the Elizabethan English meaning of *children* was more consonant with a reading of 'offspring, descendant'. But contemporary English gives the term a flavor more in keeping with the meaning of 'minor', so that even though speakers realize they mean adults, there is still a remnant of the helplessness of childhood that lingers around the term. The Hebrew original is robustly and unambiguously a matter of descent.

5. *Conclusion*

How semantic polarities are coded in a language directly affects the connotational value of simple denotative utterances. This is a fact that bilinguals instinctively understand and can utilize for extremely subtle stylistic distinctions. For translators, the issue is one they must grapple with in order to ensure that not only the logical surface meaning, but also the unstated implications are mapped appropriately from the original to the translation. In the case of language pedagogy, instructors should sensitize their students to the subtle differences in the meanings of basic vocabulary items from one language to the other. An English-speaking student cannot simply memorize that *boy* in Hebrew is ילֶד [jeled] and leave it at that. The question students must be trained to ask themselves is: "Boy, as opposed to what?"

Pairs of polar opposites and two-sided relations are semantically intertwined. The choice of the lexeme indicates which relation is meant to be highlighted. When the same lexeme stands for one side of more than a single pair of opposites, the functional load of the dichotomy is carried by the word marking the other pole of the binary opposition.

REFERENCES

Lakoff, George. 1987. *Women, Fire and Dangerous Things*. Chicago: University of Chicago Press

Lambdin, Thomas O. 1971. *Introduction to Biblical Hebrew*. New York: Charles Scribner and Sons.

A TOUGHISH PROBLEM: THE MEANING OF *-ISH*

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1. The Problem

Unfortunately little has been written about the English adjectival suffix *-ish*. The few comments that are offered in standard grammars generally suggest that *-ish* functions as an approximator whose meaning could be paraphrased by the words *somewhat*, *around*, *sort of*, *approaching*, *like* and so forth[1]. This interpretation would seem to be supported by the evidence offered by a tremendous number of *-ish* adjectives, including the likes of *bluish*, *dullish*, *outdoorish*, *Mark Twainish*, *boyish*, *sweetish-sourish* and *thirtyish*, in which an idea of approximation or attenuation is uncontestably present. There are, however, other uses of *-ish* where it is rather difficult to see the suffix as an approximator. Adjectives of nationality, such as *English*, *French*, *Swedish* and *Welsh*, are a good case in point. Some *-ish* adjectives with nominal word bases are also problematic. For instance, a stylish piece of clothing is normally perceived to have style and not to be a garment which is merely verging on having style. Similarly, a selfish person could not be defined a person who is a likeness or an approximation of a self. In short, there are cases in which *-ish* produces expressive effects which cannot be paraphrased in any of the ways listed in standard grammars. This would suggest that *-ish* has not yet been adequately defined and that a reassessment of the workings of the suffix is called for in order to arrive at a better understanding of its grammatical and lexical roles.

Furthermore, since *-ish* has been inadequately investigated to date, its place in the broader system of lexical suffixes has not been determined. For example, adjectival *-ly* and *-like* can also be as approximators, but not in the same manner as *-ish*. This investigation of *-ish* is a small part of a much broader on-going study of adjectival and adverbials suffixes which has been undertaken in an attempt to investigate the interaction of grammatical and lexical meaning during the genesis of the word.

2. A Brief History of -ish

The development of *-ish* (AS *-isch*) as an adjectival suffix is limited to the Germanic languages. No other group seems to have adopted the suffix and expanded its range of usage. It is worthy of note, however, that *-ish* is a cognate of the Greek ισκοίς, meaning "make like", "think like", "approaching", "likeness", an association which would seem to reinforce the idea that *-ish* is fundamentally an expression of approximation, likeness or nearness. In its earliest occurrences in English, the *-ish* suffix was used to forge adjectives of nationality (e.g. *English, Danish, Scottish*). It then came to be used with a limited range of noun bases evoking animate beings (e.g. *fiendish, foolish, wolfish*). These forms were subsequently lexicalized (i.e. lost their status as *ad hoc* formations), probably before the Middle English period given the dearth of word bases of French origin in this category. The suffix next seems to have undergone a metaphorical extension which allowed it to be appended to a very small number of nominal bases with inanimate traits (e.g. *bookish, stylish*). Next *-ish* came to be used with adjectival bases (e.g. *greenish, tallish*) and to function as an approximator. It is at this stage that the productivity of the suffix increased markedly as *-ish* was suffixed to a tremendously wide variety of adjectives, including many of French origin. The range of *-ish* grew still further when its use was extended to bases made up of proper nouns (e.g. *Gibson-girlish hair*), noun phrases (e.g. *a man-in-the-streetish sort of opinion*), numbers (e.g. *Come around sixish*) and even adverbials (e.g. *He's been feeling rather downish*). Examples such as *peckish* and *snappish* show that *-ish* can be found with verbal bases, but these forms are not recent creations and there would seem to be little or no productivity today.

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[1] Quirk et al. 1534 provide a fairly typical analysis.

This very brief history of *-ish* reveals that the suffix shows stronger affinities to certain types of word bases than others. While it is still highly productive when appended to adjectives, noun phrases and proper nouns, its use in combination with nominal bases is more restricted. If the expressive effect sought is one of approximation, *-ish* can be used with a wide variety of bases on an *ad hoc* basis. However, the suffix no longer seems to be producing adjectives which are subsequently lexicalized in the same manner as early creations such as *foolish* and *fiendish*. The reasons motivating the various affinities of *-ish* and its uneven productivity merit a further comment; they ultimately hold the key to a better understanding of the meaning and workings of the subject.

3. Nominal bases + -ish

It is not possible to make up an exhaustive list of the nominal bases that *-ish* can be added to in an *ad hoc* manner. In fact, it is difficult to declare any particular base a total mismatch for *-ish* in all possible situations. There are, however, certain traits shared by those nominal bases which have lexicalized *-ish* adjectival forms. As the following list reveals, they are generally monosyllabic words of Germanic origin: *foolish, freakish, ghoulish, sheepish, boorish, loutish, fiendish, childish, girlish, boyish, roguish, devilish, wolfish, heathenish, dwarfish, bookish, stylish.*

Another striking feature is that many of the nominal bases which readily take *-ish* evoke animates, often animates which are human or vaguely human in nature. This observation merits a few comments because, as will be seen, it is highly pertinent to the argument that will be developed below. Animate nouns differ from inanimate nouns in the degree and type of definition that they require. While inanimate nouns can be satisfactorily defined by means of a one-step procedure that simply contrasts their lexical traits with all of the traits that they do not contain, thus setting them off from their background space, animate nouns require a two-step definition. They must be first distinguished from all entities of a different nature (background space) and then from those things of a similar but opposed nature (Morris 1991). Very simply put, animate nouns are more highly defined than inanimate nouns and could therefore be considered to have a greater number of salient characteristics. As will be seen, the presence of highly salient traits in the word base is crucial to *-ish* lexicalization.

Numerous writers have commented on the pejorative nuance that accompanies many uses of animate nominal bases + *-ish*. The first remark to be made here is that a number of the word bases themselves have a very negative connotation exclusive of any addition of *-ish*. For instance fools, freaks, ghouls, sheep, boors, louts, fiends, rogues, devils, heathens, dwarfs and wolves do not enjoy terribly good reputations. This would suggest that *-ish* itself is not inherently pejorative. However, it remains to be explained why *-ish* should append so readily to these bases but not easily form adjectives such as *??friendish*, *??heroish*, *??lordish* and so forth.

It could be argued that the negative characteristics of nominal bases such as *fiend* and *rogue* have a higher degree of salience than the positive characteristics of bases such as *friend* and *lord*. In a number of respects, the pejorative bases would seem to behave like marked forms, containing features which characterize them to a higher degree than their meliorative counterparts. Rather sadly, this argument can be extended to *woman* and *girl*, which can also be viewed as "marked" forms, particularly when used to qualify someone of the opposite sex. In contrast, *man* and *boy*—the unmarked counterparts—are not as strongly negative when adjectivized with *-ish*. This may be due in large part to psychological differences between the two sexes. While most men and boys have a strong aversion to being attributed any female characteristics, most women do not feel that same horror if the situation is reversed (Sadker and Sadker 83-85).

Inanimate nominal bases, which have a lesser degree of definition and therefore less salience, are rarely lexicalized with the *-ish* suffix. *Book* and *style* are two of the rare exceptions to this very strong general tendency. While it is not easy to say why either has come to be lexicalized with *-ish*, it could be argued that both show some fairly salient features. *Bookish*, which is generally said of human beings, brings to mind stereotypical qualities one tends to associate with books—i.e. dryness, dullness, pedantry—and often has pejorative overtones. *Stylish*, on the other hand, even when applied to a person, would be more accurately described as meliorative than pejorative and could hardly be seen to convey any idea of notoriety. It does, however, evoke the epitome of style and this perhaps constitutes its salience.

The evidence presented thus far suggests very strongly that the presence of salient features in a nominal word base is a key factor in the creation of lexicalized *-ish* adjectives. If *-ish* is viewed not as an approximator – which it is clearly not in all situations – but instead as an abstractor of traits from its word base, its strong affinity with animate nouns with a certain notoriety begins to make sense. Highly salient, stereotypical or marked traits are easily abstracted from a concept, while less salient traits are not.

Further evidence for the *-ish*-as-an-abstractor argument can be produced. An examination of the data reveals that the nominal bases that readily take *-ish* share yet another feature. They are almost exclusively nouns that lend themselves to a count rather than a mass interpretation. In fact, the nominal bases that are the hardest to imagine with an *-ish* suffix are those which are almost always realized in discourse as mass nouns, for example *mud* (??*muddish*), *water* (??*waterish*), *grass* (??*grassish*) and so forth. These nominal bases are usually adjectivized by means of the *-y* suffix, producing *muddy*, *watery* and *grassy*. Now, if the presence of highly salient, stereotypical characteristics is necessary for *-ish* to be appended to a nominal base as an abstractor, the incompatibility of *-ish* with mass nouns begins to make sense. Salient features tend to be easier to perceive in an individual token than in a type evoked globally.

Once a mass noun, verb or even a count noun which does not readily take *-ish* has been adjectivized through the addition of another suffix, the appending of *-ish* is greatly facilitated. For instance, *muddish*, *playish* and *seasonish* are quite difficult to produce, whereas *muddyish*, *playfulish*, *seasonalish* pose no particular problems. In other words, as the nominal characteristics of the word base are lost or masked and adjectival characteristics come to the fore, the addition of *-ish* becomes increasingly easy. The question which must now be answered is why this occurs. If *-ish* has a single meaning and function, then there must be some sort of connection between nominal bases with highly salient, stereotypical qualities and the great mass of adjectives to which *-ish* can be appended. Clearly a study of adjectival bases taking *-ish* is in order.

4. *Adjectival bases* + -ish

In terms of expressive effects, a study of adjectival bases + *-ish* would seem to turn up the very opposite of what was found in the case of nominal bases. Adjectival bases + *-ish* result almost unfailingly in a nuance of approximation or attenuation, in a watering down of the quality represented by the adjective. The strongly pejorative nuance found in many nominally-based *-ish* adjectives is lost. While someone foolish is usually quite the fool and someone fiendish is quite the fiend, something yellowish is tending towards yellow and someone youngish is only sort of young.

This difference in expressive effects is reinforced by a difference in syntactic behaviour. While *-ish* adjectives with a nominal base take intensifiers quite readily, (e.g. *very sheepish*, *truly fiendish*, *pretty ghoulish* etc.), adjectivally-based *-ish* adjectives refuse most attempts at intensification (e.g. ??*very oldish*, ??*truly tallish*). It would thus seem that nominally-based *-ish* adjectives tend towards a stereotypical, exaggerating characterization while adjectivally-based *-ish* adjectives tend towards an attenuating, diminishing characterization.

Further observation in the field of morphology confirms this tendency. If adjectival bases are treated to form comparatives and superlatives (e.g. *colder*, *tallest*) in which the word base necessarily has its full lexical value, attenuated or approximative uses of the adjective are impossible and *-ish* cannot be appended (e.g. **colderish*, **tallestish*).

Lexical specialization in the adjectival base would seem to have a similar incompatibility with *-ish*, but this is extremely difficult to determine with any degree of certainty because most adjectives with a high degree of specification and a narrow range of application are of Latin origin and/or have one or more suffixes already added to them. It can nonetheless be observed that *cold* readily produces *coldish*, but *glacial* does not give way very readily to **glacialish*. *Biggish* is fine, but **enormousish* is strange indeed.

These observations raise the inevitable question: How could *-ish* play a single role in the suffixation process and result in such opposing expressive effects in adjectives with nominal and adjectival bases? The answer to this question can be found when the nature of each type of base is examined. Nominal word bases comprise a complex of lexical traits or features. In contrast, adjectival bases consist in a single lexical quality. If *-ish* is indeed an abstractor, the contrasting expressive effects obtained from nominal and adjectival bases can be explained. In the case of a nominal base, abstraction can result in the most highly salient traits of the base being applied to whatever the *-ish* adjective is to qualify. This would seem to be the case for the lexicalized *-ish* adjective forms. If the base consists in a single quality, the act of lexical abstraction results in a diminishing or attenuation of the quality, hence a resulting effect of approximation, of something less than the original quality.

5. *Proper nouns* + -ish

The final type of word base to be examined is that constituted by proper nouns. Proper nouns that take *-ish* are worthy of a separate study given that they share certain features with common nouns that take *-ish* and other features with adjectives to which *-ish* can be added.

Like many nominal bases that combine with *-ish*, proper nouns consist in a number of lexically salient traits, some of which are applied to whatever is being qualified. For example, a *Wayne Gretzkyish move* is one with some of the qualities one would associate with Wayne Gretzky and a *Mark Twainish tale* is one characterized by some of the same salient traits one would associate with Mark Twain. In other words, *-ish* can be seen to have an abstracting function in both common and proper nouns. It abstracts a number of salient characteristics from the word base and applies them to whatever is being qualified.

Unlike *-ish* adjectives with common noun bases, those with proper noun bases have a very high degree of productivity. In fact, proper noun + *-ish* adjectives rival adjective + *-ish* adjectives in terms of the facility with which they can be formed. As long as the entity named by the proper nouns is known to both the speaker and the listener, the use of *-ish* would seem to be possible. There are, however, some proper noun bases to which *-ish* can be appended with more ease than others. These deserve a closer examination. It would seem that the more well-known or notorious the referent designated by the proper noun base, the easier it is to add *-ish*. In other words, the higher the degree of salience of the comprehension (intention) of the proper noun, the more natural the fit with *-ish*. A short series of place names, each referring to a more precise location than the last provides a little insight into this tendency:

Canada	*Canadaish*
Ontario	*Ontarioish*
Toronto	*Torontoish*

While there may be phonetic factors at work here which make the addition of *-ish* seem more or less natural, it could be argued that the acceptability of the adjectives increases as the salience or notoriety of the characteristics associated with each place increases. *Torontoish* would be easier to produce than the *-ish* adjectives preceding it because of the greater number of traits someone with a knowledge of the city can associate with it. For all three of the examples given, speaker and listener familiarity with the word bases and all that they connote is assumed.

Names of people can be arranged in a similar order of naturalness with *-ish*. The better known or the more notorious the individual, the easier it is to add *-ish*. For example, *Bill Clintonish* is more likely to occur than *John Doeish*, except in very particular circumstances in which John Doe has a certain degree of notoriety.

When whatever is designated by a proper noun reaches a certain stage of renown, it tends to be accorded its own adjectival form (e.g. *Shakespearean*, *Kafkaesque*). It is interesting to contrast the expressive effect obtained using an *-ish* adjective with that obtained using a less *ad hoc* word base + adjectival suffix combination. The *-ish* suffix gives rise to a considerably more pejorative nuance and to what could be termed a watered-down qualification. For example, *Shakespearish writing* brings to mind a poor imitation of the bard and not something approaching his greatness and a *Kafkaish situation* would not seem to be as nightmarish as a *Kafkaesque* one. This observation might also be applied to the place-name example used above. The fact that *Canadian*, *Ontarian* and *Torontonian* have already been forged as adjectives might account for the awkwardness of the corresponding *-ish* forms. The question remains, however, as to why the presence of a lexicalized adjectival form should lead to less currency and a more pejorative nuance for an *ad hoc* use of *-ish*.

An answer can be found when the relationship between the word base and the suffix of the lexicalized forms is examined in more detail. The *-ian/-ean* suffix simply attributes whatever is modified to what is evoked by word base of the adjective. For example, *Shakespearean writing* is writing done by Shakespeare and the *Canadian hockey team* at the Olympic Games is the one belonging to Canada. In other words, the *-ian/-ean* suffix does not affect the lexeme of its word base in any substantial way. It instead plays the role of a possessive and establishes a relationship of appurtenance between its word base and what is qualified. In contrast, the *-ish* suffix does not establish links of appurtenance. In fact, as was seen with the *Shakespearish writing* example, it blocks such relationships. It does this by acting on the word base and abstracting the most salient qualities from it. The pejorative nuance found when *-ish* is appended to some proper noun bases results from this abstraction. Functioning as an abstractor *-ish* selects some, but not all of the qualities from the word base. This means that it delivers a lexical content which is necessarily less complete than that of the original base. Thus only some of the qualities of Shakespeare, Kafka or Wayne Gretzky are used when *-ish* is appended. This explains why a *Wayne Gretzky pass* is better than a *Wayne Gretzkyish pass* and a *Kafka novel* is a better read than a *Kafkaish novel.*

The high degree of productivity of proper noun bases + *-ish* remains to be explained. Once again, an answer can be found upon examination of the nature of the base in question. Proper nouns are characterized by a high degree of comprehension or intention (i.e. an infinite number of defining traits) and an extension considered to be limited to a single entity in conversational situations. The high degree of intention of the word base guarantees the presence of a high number of salience traits, thus making the proper noun an ideal candidate for lexical abstraction and thereby paving the way for the addition of *-ish.* In contrast, common nouns have a much greater extension and therefore a more limited intention than proper nouns. This results in a lesser number of salient features being present in the word base and a lesser chance of *-ish* being appended.

The final case to consider is that of adjectives of nationality, the starting point in the evolution of the *-ish* suffix and the final point of this discussion. To understand how *-ish* got its start it is necessary to reflect briefly on likeness and abstraction, two concepts which are closely linked. Thus far it has been argued that *-ish* serves to abstract the most salient lexical traits of a word base. These traits are necessarily those that best define the concept, i.e. those that are shared by all or most of the entities that can be included under the concept. When the word base is the name given to any individual member of a nation, the number of traits common to all of those included under the appellation is rather limited. In fact, other than human animacy, the only traits shared by all those who were called Franks or Angles or Scots at a particular point in time are nationality and language, the very things that adjectives such as *French, English, Scottish* and so forth bring to mind today.

When *-ish* is looked at in this perspective, there is a common denominator which could be seen to link words like *English* to words like *bluish.* In each case, the *-ish* suffix operates as an abstractor, retaining part but not all of the lexical content of its word base. The only difference between the two uses is the nature of what is abstracted. In the case of *English*, the most salient features common to Angles are retained. In the case of blue, a portion of the quality 'blue' is retained.

6. *What does* -ish *mean?*

It is now possible to understand how *-ish* can lead to such different expressive effects according to whether the word base to which it is appended is nominal or adjectival in nature. Nominal bases offer up a variety of lexical traits, some more salient than others. If, as is being proposed here, *-ish* operates as an abstractor, then it will abstract the most salient and typical of the lexical traits from a nominal base and attribute them to whatever the *-ish* adjective qualifies. Since only some lexical traits are retained and not all, it is possible to explain the pejorative nuance or the impression of a poor imitation that is sometimes generated by *-ish* adjectives with nominal bases. The word base treated by *-ish* is a lexically weaker version of the original and therefore can be used quite readily in a diminishing, pejorative manner. This does not have to be the case, however. When the features retained constitute the epitome of the nominal base, as in the case of *stylish*, the expressive effect has no negative overtones. In cases such as *bookish*, the expressive effect can go either way depending on whether the speaker sees the attribution of booklike characteristics to a person to be a good or bad thing. In the case of proper nouns, a tremendous range of lexical traits is available. The more renowned the figure or the place named, the easier it would seem to use *-ish* to abstract salient traits, but essentially any proper noun can serve as a word base for an *-ish* adjective.

Adjectives, which have a substantially different lexical make-up than nouns, be they common or proper, react rather differently to the process of lexical abstraction. Adjectives express single qualities and not a complex of lexical traits. If an abstractor operates on a single quality, it cannot abstract a number of salient traits while leaving other traits. It can only abstract a portion of the total quality. The result is a quality which is necessarily lesser than the original, whence the expressive effect of approximation or attenuation so common in adjectivally-based *-ish* adjectives. Something bluish has some but not all of the quality 'blue'. Someone youngish has some but not all of the quality 'young'. The fundamental differences between nouns and adjectives can also be used to account for the fact that the adjectival bases are still highly productive today while nominal bases are not. When only one lexical quality is available, as in the case of adjectives, the problem of salience and stereotypicality which underlies nominally-based *-ish* adjectives is removed. Since there is only one defining feature per adjective, that feature is necessarily salient. In a sense, the process of adjectivization has already done some of the abstracting work that *-ish* handles. This is why adjectivalized nouns can take *-ish* more readily than non-adjectivalized nouns (e.g. ?*Canadaish*, *Canadianish*, ?*muddish*, *muddyish*).

It can thus be argued that *-ish* is consistent in both meaning and function. It always operates as an abstractor that removes part of the total lexical material available to it. If the available material can be broken down into traits, it abstracts the most salient of them. If the available material is a single quality, *-ish* abstracts a portion of the quality and thus lessens it. The various pejorative expressive effects attributed to *-ish* in many of the standard grammars of English are not inherent to the suffix. They are simply made possible by the abstracting action of *-ish*.

REFERENCES

Bauer, Laurie (1983). *English Word-Formation*. Cambridge: Cambridge University Press.

Ljung, Magnus (1970). *English Denominal Adjectives: A Generative Study of the Semantics of a Group of High-Frequency Denominal Adjectives in English*. Gothenburg Studies in English. Lund: Acta Universitatis Gothoburgenis.

Marchand, Hans (1969). *The Categories and Types of Present-Day English Word-Formation. A Synchronic-Diachronic Approach*. Second Edition. Munich: C.H. Beck'sche Verlagsbuchhandlung.

Morris, L. (1991). *Gender in Modern English: The System and Its Uses*. Doctoral Thesis, Université Laval.

Quirk, R. et al. (1985). *A Comprehensive Grammar of the English Language*. London and New York: Longman.

Sadker, M. and Sadker, D. (1994). *Failing at Fairness: How Our Schools Cheat Girls*. New York: Simon and Schuster.

WHY ISN'T *LITTLE* THE OPPOSITE OF *LARGE*? ANTONYMY AND SEMANTIC RANGE

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1. Introduction

Most semantic models (e.g., Lehrer and Lehrer 1982, Cruse 1986, Mettinger 1994) define antonyms as adjectives which are associated with opposite ends of a semantic dimension or scale. For example, *hot* and *col* name opposite ends of the dimension of TEMPERATURE, and *long* and *short* occupy opposite ends of the dimension of LENGTH. Given this understanding of antonymy, the case of *big, little, large* and *small* presents a puzzle. Since all four adjectives are related to the dimension of SIZE, with *big* and *large* naming one end of the dimension and *little* and *small* naming the other, it might be expected that these four adjectives would form four pairs of antonyms: *big/small, big/little, large/small* and *large/little*. However, native speakers consider only the first three pairs to be antonyms; although *little* and *large* clearly contrast in meaning, they are not felt to be true opposites.

Several suggestions have been made in the literature to explain why particular pairs of semantically contrasting adjectives fail to be antonyms. Egan (1968: 29a) says that such near-opposites may vary in their "range of application or applicability, one being general, the other specific, or one being more inclusive or less inclusive than the other," as is the case with *rich* and *destitute*. Lehrer and Lehrer (1982: 496) mention differences in 'distribution' , noting that "*...big* and *little* but not *large* and *small* overlap with *older* and *younger*. *My big sister* is not equivalent to *my large sister* on one interpretation." And Cruse (1986: 262) suggests that one thing that may keep two contrasting words from being antonyms is a difference in 'non-propositional meaning', that is, a difference in connotation such as is found with the pair *emaciated* and *tubby*.

The observation underlying all these suggestions is that although prototypical antonyms show a contrast along a particular semantic dimension, they are very similar in other aspects of their meaning. In fact, I would argue, it is this similarity which causes contrasting words to be perceived as antonyms, because it is these similarities in distribution, connotation and non-propositional meaning--which I group together under the heading of 'semantic range'--which allow the two words to be used together to show a strong contrast. Justeson and Katz (1991, 1992) have found that antonyms co-occur in the same sentences at a rate much higher than would be expected by chance; they consider this co-occurrence to be a defining feature of antonymy. I believe it is shared semantic range which makes co-occurrences of antonyms possible and likely. Thus the explanation of why *large* and *little* are not antonyms is that although they display a certain amount of contrast in meaning, they do not share much semantic range in common; that is, they are simply not used to describe the same kinds of things and so there are very few opportunities for speakers to use them together to show contrast.

The rest of this paper is a case study of the semantic ranges of *big*, *little*, *large* and *small*[1]. It shows that the three pairs of antonyms, *big/little*, *large/small* and *big/small*, are in fact pairs which share a great deal of semantic range, while the near-opposite pair *little* and *large* have almost no semantic range in common.

2. *Method and Sources of Data*

The semantic ranges of the four adjectives in this case study are characterized in terms of the kinds of nouns they typically modify; that is, their ranges of meaning are understood by looking at the kinds of things they are used to describe. *Big*, *little*, *large* and *small* are all adjectives of size, but the particular nature of the size dimension varies with the kind of thing being described, from purely physical size (*big tree*, *little house*) to the number of members of a group (*small audience*, *large crowd*) and to more abstract kinds of size (*large amount*, *big effect*, *little secret*).

Two main sources of data were used in this study. First, I consulted several dictionaries for learners of English which provided detailed explanations of the differences between synonyms such as *big* and *large* and *small* and *little*. Next, I used data on adjective-noun co-occurrence patterns gathered from a large corpus (about 50 million words) from the *New York Times* using a measurement called the mutual information statistic[2]. This statistic expresses the strength of association between two words in a corpus by comparing the number of times the two words actually co-occur to the number of times they would be likely to occur together through chance[3]. A list was compiled of the nouns which occurred significantly often with each adjective in the corpus,[4] and these nouns were then semantically sorted to provide a characterization of the semantic range of each adjective. Finally, the ranges of the adjectives were compared to each other.

The figures below summarize the results of these comparisons. For example, Figure 1 below compares the semantic ranges of *big* and *large*. A ring identifies the semantic range of each adjective, and the boxes inside the rings show the semantic categories of nouns (e.g., *Physical Objects* and *Groups*) which occurred with each adjective. A few example nouns are provided for each category, and numbers in parentheses indicate the total number of nouns in the category. The area of overlap of the two rings indicates the area of semantic range shared by the two adjectives.

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[1] An extended treatment of this set of adjectives is available in Muehleisen 1997.

[2] The program which generated this statistic was written by John Wickberg, then a graduate student at Northwestern University. I am very grateful to him for suggesting that this statistic would be useful for my study and for writing the program that picked out the data used in this analysis.

[3] For more on the mutual information statistic, see Church and Hanks 1990.

[4] I looked at nouns which had a mutual information value of 3 or higher with the target adjective, a value which indicates a moderately strong relationship. To limit the amount of data to the most typical cases, I focused on nouns which occurred together with the target adjective at least 10 times in the corpus.

3. A Comparison of Big *and* Large

As might be expected with two near synonyms, *big* and *large* share a core area of semantic range, as shown in Figure 1 (on following page). The *Longman Dictionary of Contemporary English* (hereafter *LDOCE*) describes this shared semantic range in very general terms, saying that "*big* and *large* are used to talk about the measurements of things or groups..." (*LDOCE,* s.v. *big*). The categories of nouns which occurred with *big* and *large* in the *New York Times* corpus provide a more detailed understanding of the specific kinds of 'things' and 'groups' which can be described as *big* and *large*.

One kind of noun which occurs with both *big* and *large* is nouns which name physical objects, e.g., *box, house, painting* and *tree*. With these nouns, *big* and *large* refer to purely physical size. With the nouns that name groups of people, however, e.g., *crowd, orchestra* and *turnout, large* and *big* refer to the number of members in the group (not the physical size of the group or its members). *Big* and *large* are also both used to describe organizations (for example, *banks, airlines* and *companies*) and with these nouns, the adjectives describe the scale of the business operation, as might be measured by the volume of business transacted or the number of employees and customers.

With nouns such as *investor* and *producer,* that is, nouns which name someone who performs a particular action, *large* and *big* likewise describe the scale of the action, e.g., a *big investor* is someone who invests on a large scale. Finally, both *big* and *large* occur with nouns that describe amounts of or changes in amounts (most often amounts of money), e.g., *cut, drop, deficit, profit,* and *stake.*

Although *big* and *large* are near-synonyms and thus share a basic area of semantic range, their semantic ranges are by no means identical, as can be seen in the non-overlapping areas of Figure 1. One obvious difference between the two is that *large* but not *big* occurs significantly often in the corpus with many different nouns that name quantities, including *areas, amount, number,* and *quantity.*[5] *Big* does not occur in the corpus at all with most of these nouns and only rarely with others (for example, the phrase *big quantity* occurred only once in the corpus, compared with 23

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[5] The difference between these quantity nouns and the amount nouns such as *deficit, cut* and *drop,* which also occur with *big,* is that the latter describe an amount of something (typically, an amount of money), while the quantity nouns name a type of quantity, e.g., a percentage or a volume.

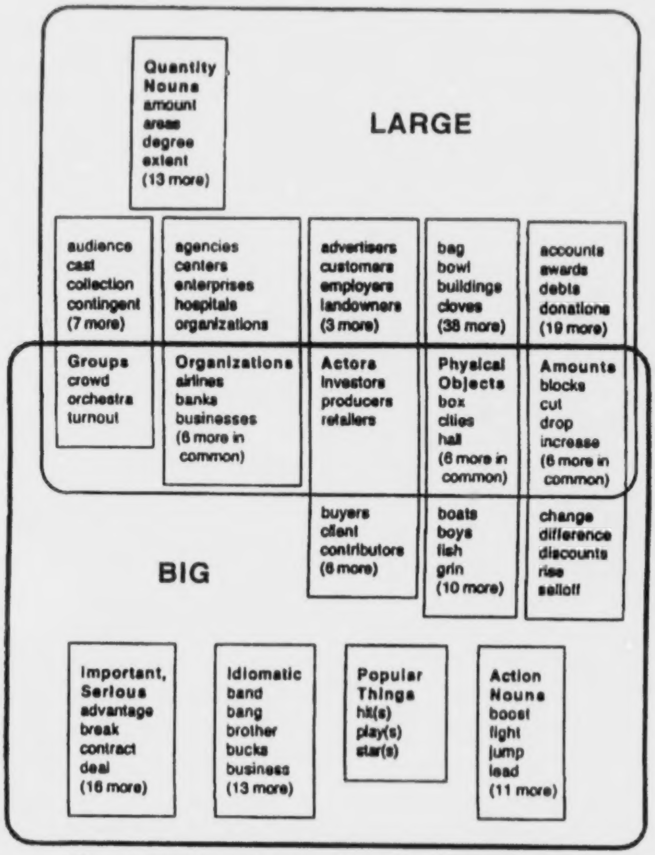
LARGE
Quantity Nouns
amount
areas
degree
extent
(13 more)
audience
cast
collection
contingent
(7 more)
agencies
centers
enterprises
hospitals
organizations
advertisers
customers
employers
landowners
(3 more)
bag
bowl
buildings
cloves
(38 more)
accounts
awards
debts
donations
(19 more)
Groups
crowd
orchestra
turnout
Organizations
airlines
banks
businesses
(6 more in common)
Actors
investors
producers
retailers
Physical Objects
box
cities
hall
(6 more in common)
Amounts
blocks
cut
drop
increase
(6 more in common)
buyers
client
contributors
(6 more)
boats
boys
fish
grin
(10 more)
change
difference
discounts
rise
selloff
BIG
Important, Serious
advantage
break
contract
deal
(16 more)
Idiomatic
band
bang
brother
bucks
business
(13 more)
Popular Things
hit(s)
play(s)
star(s)
Action Nouns
boost
fight
jump
lead
(11 more)

Figure 1. The semantic ranges of *large* and *big*, based on data from the *New York Times* corpus.

occurrences of *large quantity*).

With the nouns that occur with *big* but not with *large*, *big* describes seriousness or importance (e.g., *big advantage, big event, big problem*), popularity (*big hit, big star*) or the intensity of an action (*big boost, big jump*). With most of these nouns, *large* sounds distinctly odd (e.g., *?large advantage, ??large event*) and *large* certainly cannot replace *big* in any of the idiomatic phrases which include *big*.

Even within the categories of nouns which can be modified by both *large* and *big*, there are some differences between the uses of the two adjectives. For example, *big* occurred with 27 different physical object nouns. Eight of these were related to people or the human body (*boy, grin, guy, guard, kid, mouth, smile, toe*), but *large* did not occur significantly often with any nouns related to people. As the *LDOCE* notes, *large* is "not so often used of people" (*LDOCE*, s.v. *big*). However, *large* occurred with about twice as many nouns as *big* did, 53 different nouns in all, only 9 of which also occurred with *big*. This fact is somewhat surprising. Given that the

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physical size sense seems to be the most basic sense of *big* as well as of *large*, it seems that *big* should be used as easily as *large* to describe such things as *eggs, estates, fireplaces, gardens, parcels, stones,* and *telescopes.* However, *large* was preferred over *big* to modify these nouns in the *New York Times* corpus. One reason for this may be that, as *LDOCE* notes, "*large* is slightly more formal" (*LDOCE,* s.v. *big*), and so it might be preferred in this written corpus. Another reason why *large* is chosen over *big* to modify nouns such as *eggs, onions, pan,* and *skillets* may be because, as the *Oxford Advanced Learner's Dictionary* says, *large* can be used, along with *medium* and *small*, "to describe one of a range of sizes of clothing, food, and household products" (*Oxford Advanced Learner's Dictionary,* s.v. *large*).

4. The Meanings of Small *and* Large

Since *small* is the antonym of *large*, the prediction would be that it shares a great deal of semantic range with *large*. The data from the *New York Times* corpus, in Figure 2 (on the following page), shows that this is in fact the case.

Small modifies all the categories of words which occur significantly often with *large*: in the corpus, it occurred with physical objects (e.g., *aircraft, children, farms, onion*), groups (*armies, crowd, groups*), quantity nouns (*amount, fraction, percentage*), organizations (*businesses, college, company*), actors (*employers, farmers, investors*), and amounts (*contributions, doses, fees*). Within all of the categories, *small* and *large* both occur with many of the exact same nouns; for example, *small* occurs with 11 different quantity nouns, and all except two of these also occur significantly often with *large*. This extensive area of shared semantic range means that for any typical use of *large*, there is a contrasting use of *small*, so there are many opportunities for speakers to use *large* and *small* together, as in the example in (1) below.

(1)For those who like two sinks but don't have the space for both a large and a small sink, Vance makes a combination double-single sink in stainless steel. (Mary Smith. 1984. Helpful hardware; space saving sinks. *New York Times*, 1 March, section 2, 2.)

According to Justeson and Katz (1991, 1992) frequent encounters of this type of sentential co-occurrence lead to our strong intuitions that *large* and *small* are antonyms.

5. *Little Contrasted with* Large *and* Big

Although *little* is considered a close synonym of *small*, the two adjectives are actually quite different in terms of semantic range. Looking at Figure 3 (on the following page), it can be seen that unlike *small*, *little* has almost no semantic range in common with *large*. *Little* did not occur significantly often with most of the categories of nouns modified by *large* and *small*; it did not occur with quantity words, amounts, groups, organizations, or actors, and *little* sounds quite odd with most of the words in these categories (consider, for example, *??little proportion, ??little corporation, ??little audience*). The only category *little* and *large* have in common is physical objects, and even within this category, there was only one noun which occurred significantly often with both *little* and *large* in the *New York Times* corpus, namely *boxes*. Although it would be possible for *little* to be used with most of the physical objects nouns which occurred with *small*, such as *flowers* or *kitchen*, it actually occurred with far fewer nouns of this type than *small* did. The explanation for this probably lies in the connotations associated with *little*: *LDOCE*, for example, says that *little* is "used about someone or something that is small to show that you like or dislike them or feel sorry for them" and that "*little* often suggests that you are talking about someone or something you feel sympathetic towards" (*LDOCE*, s.v. *little*). Most of the nouns with occurred with the adjective *little* described people (e.g., *boy, fellow, girl*) or places that people might consider quaint or charming

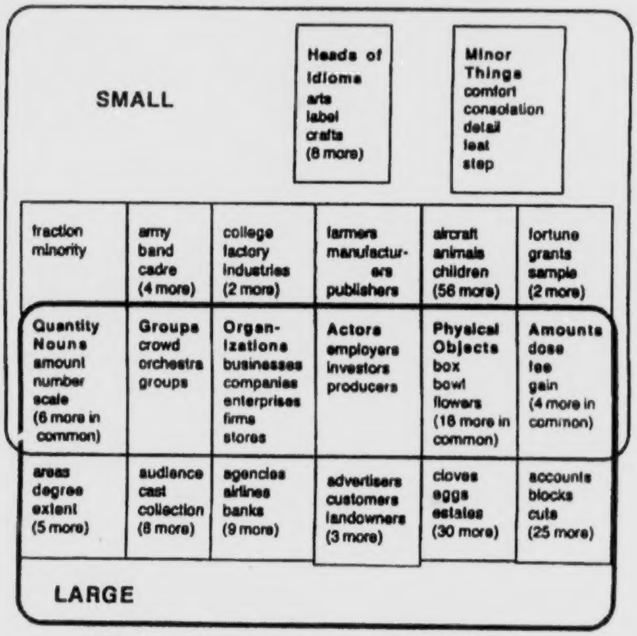
SMALL
Heads of Idioms
arts
label
crafts
(8 more)
Minor Things
comfort
consolation
detail
feat
step
fraction
minority
army
band
cadre
(4 more)
college
factory
industries
(2 more)
farmers
manufacturers
publishers
aircraft
animals
children
(56 more)
fortune
grants
sample
(2 more)
Quantity Nouns
amount
number
scale
(6 more in common)
Groups
crowd
orchestra
groups
Organizations
businesses
companies
enterprises
firms
stores
Actors
employers
investors
producers
Physical Objects
box
bowl
flowers
(18 more in common)
Amounts
dose
fee
gain
(4 more in common)
areas
degree
extent
(5 more)
audience
cast
collection
(8 more)
agencies
airlines
banks
(9 more)
advertisers
customers
landowners
(3 more)
cloves
eggs
estates
(30 more)
accounts
blocks
cuts
(25 more)
LARGE

Figure 2. The semantic ranges of *small* and *large*

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(*island, shop, village*).

Since *large* is more formal in register and not used so often with nouns that describe people, the potential range of contrast between *large* and *little* even within the category of physical objects nouns is quite limited. There are very few occasions in which is it even possible to describe the same kinds of things with both *large* and *little* so these two adjectives are rarely used together and are not considered to be antonyms.

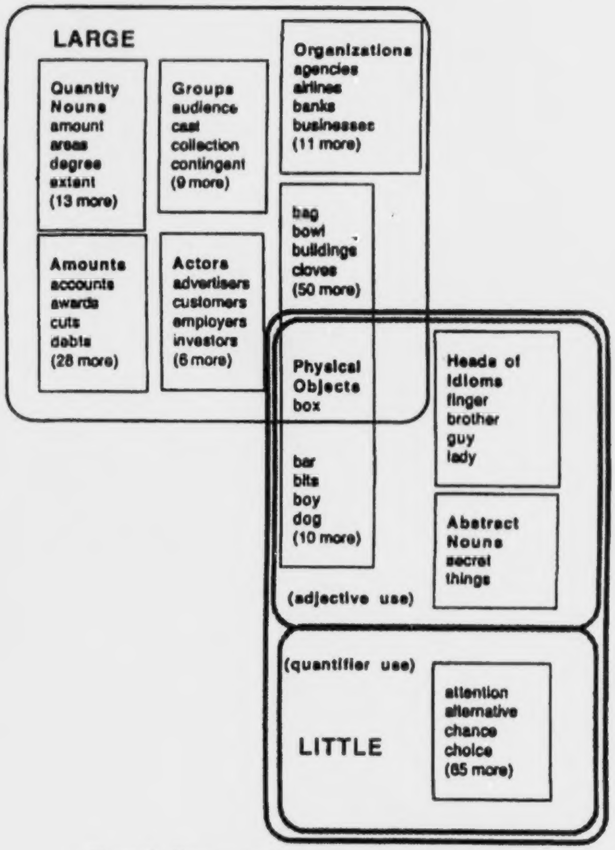
LARGE
Quantity Nouns
amount
areas
degree
extent
(13 more)
Groups
audience
cast
collection
contingent
(9 more)
Organizations
agencies
airlines
banks
businesses
(11 more)
Amounts
accounts
awards
cuts
debts
(28 more)
Actors
advertisers
customers
employers
investors
(6 more)
bag
bowl
buildings
cloves
(50 more)
Physical Objects
box
bar
bits
boy
dog
(10 more)
Heads of Idioms
finger
brother
guy
lady
Abstract Nouns
secret
things
(adjective use)
(quantifier use)
LITTLE
attention
alternative
chance
choice
(65 more)

Figure 3. The semantic ranges of *large* and *little*

In addition to its use as an adjective, *little* can also be used as a quantifier with non-count nouns such as *attention, confidence*, and *discussion*. The other adjectives in this study can not be used as quantifiers, yet the meaning of *big* with certain adjectives seems to correspond well to the quantifier use of *little*, a fact which is shown in Figure 4. In fact, both the adjective *big* and the quantifier *little* occur with many of the same nouns, e.g., *change, difference, help*, and *impact*, nouns which are interpreted as non-count nouns with *little* but as count nouns with *big*. Although there is a syntactic difference between the adjective *big* and quantifier *little*, they offer a strong semantic contrast and can be used together, as in the examples in (2) and (3)

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below[6].

> (2) Personality types make little difference, he says, except that people who are "self-motivators" are more likely to keep on exercising. The attitude of your friends or spouse toward exercise--better yet, their joining in--makes a big difference, as several research projects point out (Steve Lohr. 1994. Good health: An exercise high that lasts. *New York Times*, 2 October, section 6, 66.)
>
> (3) The outcome of the case, as well as pending legislation in Congress, could have a big impact on the types of retirement benefits available to workers... Actuaries agree that unisex tables would have little impact on defined-benefit plans... (Deborah Rankin. 1983.

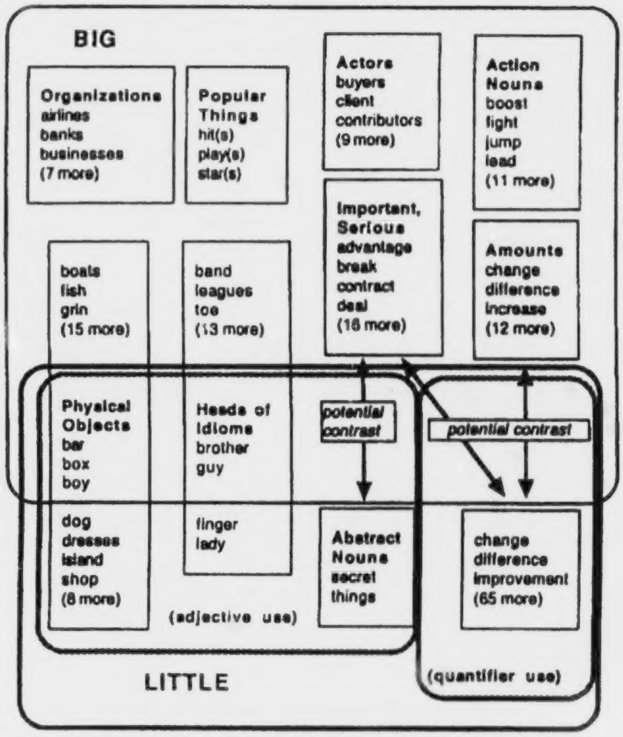
BIG
Organizations
airlines
banks
businesses
(7 more)
Popular Things
hit(s)
play(s)
star(s)
Actors
buyers
client
contributors
(9 more)
Action Nouns
boost
fight
jump
lead
(11 more)
boats
fish
grin
(15 more)
band
leagues
toe
(13 more)
Important, Serious
advantage
break
contract
deal
(16 more)
Amounts
change
difference
increase
(12 more)
Physical Objects
bar
box
boy
dog
dresses
island
shop
(8 more)
Heads of Idioms
brother
guy
finger
lady
potential contrast
potential contrast
Abstract Nouns
secret
things
change
difference
improvement
(65 more)
(adjective use)
(quantifier use)
LITTLE

Figure 4. The semantic ranges of *big* and *little*

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[6] Fellbaum (1995) discusses other cases of semantic contrast and co-occurrence involving words from different syntactic classes, such as the noun *loss* used together with the verb *gain*.

Personal finance: What's sexual equality in a pension. *New York Times*, 10 April, section 3, 11.)

Not only does *big* contrast with the quantifier *little*; it also contrasts with the adjective *little*. Parallel to *little secret*, we have *big secret*, and both *big* and *little* are commonly used with nouns related to people. In phrases such as *big sister* and *little brother*, *little* and *big* contrast in an important idiomatic sense in which they indicate relative age rather than size. These facts taken together mean that *big* overlaps a great deal of the semantic range of *little*, making *big* much better candidate than *large* as an opposite for *little*. It is true that the semantic range of *big* is wider than that of *little*, but the fact that *big* offers a strong contrast for most of the uses of *little* seems to be enough to insure that *big* is chosen as the antonym of *little*.

6. Big *and* Small

While many speakers choose *little* as the antonym of *big*, many others chose *small*, and *big* and *small* are actually listed as antonyms in some dictionaries and thesauruses. Figure 5 shows why this is so: *big* and *small* have a great deal of semantic range in common.

While it is not as extensive as the amount of range shared by *large* and *small*, there are still many nouns that can be modified by both *big* and *small*, including

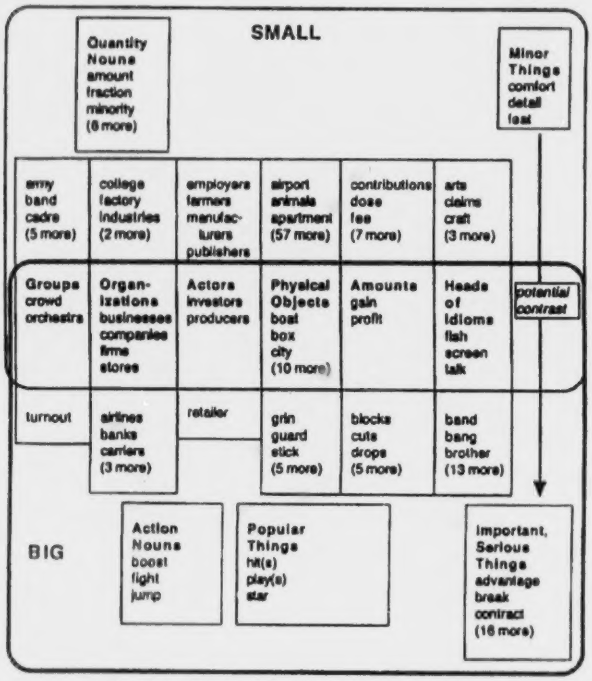
SMALL
Quantity Nouns amount fraction minority (6 more)
Minor Things comfort detail feat
army band cadre (5 more)
college factory industries (2 more)
employers farmers manufac-turers publishers
airport animals apartment (57 more)
contributions dose fee (7 more)
arts claims craft (3 more)
Groups crowd orchestra
Organ-izations businesses companies firms stores
Actors investors producers
Physical Objects boat box city (10 more)
Amounts gain profit
Heads of Idioms fish screen talk
potential contrast
turnout
airlines banks carriers (3 more)
retailer
grin guard stick (5 more)
blocks cuts drops (5 more)
band bang brother (13 more)
BIG
Action Nouns boost fight jump
Popular Things hit(s) play(s) star
Important, Serious Things advantage break contract (16 more)

Figure 5. The semantic ranges of *big* and *small*

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physical objects (*boat, city*), groups (*crowd, orchestra*), organizations (*businesses, companies*), actors (*investors, producers*) and amounts (*gain, profit*). Of course, *large* occurs with the same categories that *big* shares in common with *small*, and it occurs with more of the specific nouns that *small* occurs with; this probably explains why *large* is slightly preferred as the antonym of *small*. On the other hand, *small* and *big* share a few contrasting idiomatic uses, such as *big fish* ('an important, powerful person') and *small fish* ('a common, powerless person') and *the big screen* ('cinema') in contrast to *the small screen* ('television'). Also, the 'dismissive' sense of *small*, found in phrases such as *small detail* and *small comfort*, seems to offer a semantic contrast to the sense of *big* as 'important', although no nouns of this type occurred significantly often with both *small* and *big* in the corpus. It appears that all in all, *big* and *small* share enough semantic range and are used together often enough that many people accept them as antonyms.

7. Conclusion

The idea of shared semantic range provides an answer to a puzzle of antonymy, explaining why *little* is not the opposite of *large*. It also provides a semantic explanation for the phenomenon of antonym co-occurrence discussed by Justeson and Katz (1991, 1992) and Fellbaum (1995). Shared semantic range is likely to prove useful in understanding other cases of antonymy, (e.g., the question of why *arid* and *parched* are not antonyms of *wet*, discussed in Muehleisen 1997) and in understanding exact differences in meaning of between near synonyms.

REFERENCES

Church, Kenneth Ward and Patrick Hanks. 1990. "Word Association Norms, Mutual Information, and Lexicography." *Computational Linguistics* 16: 22-29.

Cruse, D.A. 1986. *Lexical Semantics*. Cambridge: Cambridge University Press.

Egan, R.F. 1968. "Survey of the History of English Synonymy." In *Webster's New Dictionary of Synonyms*, ed. P.B. Gove, 5a-31a. Springfield, MA: Merriam-Webster.

Fellbaum, Christine. 1995. Co-occurrence and antonymy. *International Journal of Lexicography* 8: 281-303.

Justeson, John S. and Slava M. Katz. 1991. "Co-occurrences of Antonymous Adjectives and Their Contexts." *Computational Linguistics* 17: 1-19.

Justeson, John S. and Slava M. Katz. 1992. "Redefining Antonymy: The Textual Structure of a Semantic Relation." *Literary and Linguistic Computing* 7:176-184.

Lehrer, Adrienne and K. Lehrer. 1982. "Antonymy." *Linguistics and Philosophy* 5:483-501.

Longman Dictionary of Contemporary English, 3rd ed. 1995. Essex, England: Longman Group Ltd.

Lyons, John. 1977. *Semantics*, vol. 1. Cambridge: Cambridge University Press.

Mettinger, Arthur. 1994. *Aspects of Semantic Opposition in English*. Oxford: Clarendon Press.

Muehleisen, Victoria. 1997. *Antonymy and Semantic Range*. Ph.D. diss., Northwestern University.

Oxford Advanced Learner's Dictionary, 5th ed. 1995. Oxford: Oxford University Press.

A LUCKY BREAK

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The noun *break* (or *breaks*) is involved in the meaning 'luck'; so too the verb:

1. He had a lucky break.
2. She got all the breaks.
3. We'll break even.
4. Things are breaking my way.

Such puzzling data seem distinctive enough to warrant a claim (justified by other data too) that these uses are unrelated to examples like *John broke the window*. However, this paper shows that 'luck' is one reflex of a monosemic verb, combined with the pragmatics of a cultural interpretive frame: 'luck' moves on the TIME LINE, sometimes changing direction.

Break is a common register word known by all English speakers and learned early by children. Most linguists assume such words have multiple meanings. Accordingly, *break* is polysemic in the concrete-abstract contrast of *break the window* and *break the record*; it's figurative in *break the ice*; and it's idiomatic in *break out*. The *window* sense is considered basic/concrete/literal, and applies to rigid physical objects (Fillmore 1967); other senses are extensions or mysteries. I'll call the orientation that reaches such conclusions POLYSEMICS.

My orientation, which assumes one highly abstract meaning, is MONOSEMICS. The analysis here will include the meaning 'line' (lexical *line* and not). There's also a major theme throughout: the limited reliability of conscious intuition and introspection.

Monosemics requires that data be comprehensive, mainly of actual usage. For my book-length study of *break*, my database turns out to be 8,000 examples. In contrast, polysemics underrepresents relevant data; its inadequate database creates the gaps that in turn are used to justify the multiple senses. Limited data strengthen the polysemist's belief that abstract examples are few. Actually, *break* ranges copiously over both concrete and abstract contexts.

Polysemics expects the meaning of an expression to compose fully from its words and syntax. *Break up/down/with* are idioms by this standard. Monosemics finds UNDERDETERMINATION; words contribute to expressions, but additional meaning is always evoked in use. Full determination of meaning by language is an illusion created by databases of short intuitional sentences, viewed as context-neutral but actually stereotypic.

Monosemics assumes we can't intuit the full range of a high abstraction. To understand at all, we must particularize; our likeliest and easiest choice is a STEREOTYPE, the interpretation most salient in human experience. The stereotype of *John broke the window* is

5. CAUSATIVE, human AGENT with PURPOSE likely throwing a Rock. TEMPORAL, SUDDEN, IRREVERSIBLE, PHYSICAL, in a CONCRETE RIGID OBJECT, resulting in DISCONTINUITY, even SEPARATION into PARTS. The window is glass, in a house, in the REAL WORLD – as English LITERALLY DESCRIBES it.

Of these details, only DISCONTINUITY (of a state, not material) is semantic; the rest are pragmatic specifics. A few other interpretations are readily accessible to intuition: John bangs a rock on the window, acts accidentally, is used as an instrument; he leans against the window, intending to do something else; he puts a rock on a window lying flat, inducing a crack that gradually spreads. Or the screen or frame breaks. Or John separates pane, screen and frame.

Other interpretations, like SPATIAL or MENTAL versions, need a large database: John stands between Mary and the window, dividing her view. John designs a window that diverges on the wall, on his blueprint, in his mind. All these are part of *break window*'s range.

Polysemics makes the salient concrete example basic and views abstracts as derived. Monosemics, recognizing in its data a wide continuous range, concludes that salience is pragmatic and takes the abstract as the most general, least modified. Concrete examples are pragmatic hyponyms of the abstract, created by pragmatic strategies, thus:

6. CONCRETION CONDITION: Concretion is specified pragmatically, appropriate to the apparent message and references conveyed. This condition applies globally, relative to a full discourse and anything that specifies it. There are multiple interpretations and ill-defined degrees, and variation across individual interpreters.

To illustrate the points made thus far, consider *break line* examples. Both words and phrase (I claim) are highly abstract, monosemic, specified by other words and evoked experiences.

7. I've seen bluefish of 10 to 12 pounds break 20-pound test *line*. (Evanoff)
8. Big waves or heavy winds...can break *lines* or pull the boat away from the dock.... (Jobson)
9. Then when Simon finally took it [race car] out for a few laps, an oil *line* broke. (AP)
10. The airplane smashed up some and broke a gas *line*. (Faulkner)
11. ...a brake *line* broke.... (Fales)
12. [Counterfeits] are flecked with white where the vertical and horizontal *lines* are broken. (Wilson)
13. ...the building; nothing whatsoever broke the *line* of its continuous gray back.... (Elliott)
14. The structures are dark, low to the ground, breaking the *line* of the plains. (Delaney)
15. [at sea, only] the horizon. Then a pinpoint seemed to break the gray *line*.... (Benchley)
16. The tonsure on his head was less pronounced. Anyhow its round *line* was broken by the jagged path of sewn scalp.... (Macken)
17. ...[her nose] was slightly turned up in a way that broke the *line* of her Nordic beauty.... (Wilson)
18. Then, an infinitesimal veering of the canoe, and the *line* of his body would break, the soaring arms collapse, up shoot an uncontrollable leg, and Phineas would tumble into the water.... (Knowles)
19. ...no whitecaps even, nor any bar or promontory to break the sweeping surf *line*. (Carr)
20. Out in the corridor, which contained two broken *lines* of beds.... (O'Hara)
21. Inland there were hills, set heavily on the earth, their ridge-lines lost in the forests that covered them. Their *lines* were ugly, broken and scraggly, with bald patches of rock.... (Mailer)
22. ...the occupation would break the all-important railroad *line* that connected Virginia with the Mississippi Valley.... (Catton)
23. Now and then people break *line* to get a closer look at these monuments. (Putman)
24. ...two other reporters...broke the picket *lines* and returned to work.... (Fonzi/Walter)
25. Running in a broken *line*...she [beaver] evaded the first swipe of the slashing paw.... (Michener)
26. Scully traces the history of black players' effort to break baseball's color *line*.... (Foley)
27. The Union *line* broke.... (Catton)
28. Hitler's motorized hordes broke the *line* in the Balkans...in three days. (Thomas)
29. It caused great alarm in the South; their whole *line* of defense was broken.

(Woodburn)
30. Metallic teeth on chopper passing through field make and break the magnetic *lines*. (Hawkins)
31. Ants emerged hurriedly from the fetlock, their *lines* of communication broken. (Clark)
32. ...these broken *lines* of communication in which we express our most acute feelings. (Cheever)
33. ...at times of crisis *lines* may momentarily break and members of opposing teams may momentarily forget their appropriate places.... (Goffman)
34. ...[he] has been known to break the company *line*.... (York)
35. [She saw] a frightening discontinuity between the traditional past and the shaken present...the *line* of history has been bent, perhaps broken. (Howe)

Break is MORE GENERAL than its Causal/Temporal stereotype. Instead of an Agent/Instrument/Force as Subject, spatials (12-21) have a Figure-in-Ground as Subject. Continuity is often the property broken in a line, but with (17-18, 25) it's straightness. Some lines aren't strictly straight: surf, ridge and picket lines (19, 23, 24). Lines can be relatively thin to quite broad; the "edges" can be indistinct.

Some interpretations aren't descriptions, but stipulations; we must impose a line on what's evoked. In (16), the beds are separate elements. In (67), *line of history* is our culture-specific linearization of time (Lee 1950).

There are explicit modifiers (*picket line, line of the plains*) but each example requires considerable extralinguistic knowledge. The degree and extent of concretion varies with individuals. Examples (7-8) evoke fishing lines and lifelines on a sailboat. Mechanics can see more in (9-11) than I do. People who don't know Goffman's work may be baffled by (33). Interpreters must elaborate standing in line (23), strikes (24), color (26) and company (34) lines, war (27-29, the last more abstract), magnetism (30).

Does *break line* vary, or only its contexts? The answer requires a comprehensive database. The richness of contextual detail, both explicit and evoked, never gets its due in invented databases. Richness is lost to stereotypes; without extensive contrasting variation stereotypes seem semantic. A crucial insight is lost: WORDS CONTRIBUTE LESS TO MEANING THAN USUALLY ASSUMED.

In the preceding data, the meaning 'line' is semantic, explicit. With the following metonymic-objects, it is supplied pragmatically:

36. Bonding is the staggering or overlapping of units to break the vertical joints **[= line of joints]** according to a definite pattern. (Anderson)
37. He broke his 12-gauge shotgun **[= line of handle and barrel]**, looked through the barrels, slipped two shells in the breech.... (Sturgeon)

38. "Once he moved that knee, all he can do is go home or first. But he broke his knee **[= line of upper and lower leg]**, then came back and stopped and then threw to first. It was clearly a balk.... *(Virginian-Pilot*, newspaper)
39. "You broke your wrists **[= line of arm and hand]** here. He indicated a point two-thirds through the arc of the swing. "Break 'em here." (Kahn)
40. Gable landed two big blue marlin and he **[= his line]** was once broken after an hour's struggle with a gigantic, leaping mako shark. (Niven)

All my points are converging on *break* as luck, but we must note one additional failure of small databases: they've missed a major *break* pattern. Consider summary (37). Semantically, *break* is an ordered positive-negative pair: loosely, a sequence of states 'unity, disunity'. Syntactically, *break* is transitive, an Unaccusative (Levin & Rappaport Hovav 1995): without a Subject, the (Direct) Object takes its place.

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41. **BREAK** SUMMARY (SIMPLIFIED)

SEMANTICS: **'[+ unity, - unity]'** (unity, then disunity).
SYNTAX: NP-Subject ___ **NP-Object** (AP) (PP*)
If Subject is empty, Object fills it.

Primary Pattern: **Object = 'unity'**
  Modifiers: 'aspectual-abstract':
    PP: into pieces, to bits, in half, up, down,
    AP: short, apart, asunder

Secondary Pattern: **Object = 'disunity'**
  Modifiers: 'directional':
    PP: out(of) off(of), in(to), on(to), from, to, up, down, -ward
    AP: free, loose, clear

PRAGMATICS: Head-ellipsis: N of NP unexpressed

Primary: **[relationship: R]** with
Secondary: **[way/direction: D]** through, up, etc.

Break restricts its Object to two possibilities, as in (42-43). The much-noted Primary Pattern has 'unity' as Object (*window, line, rock*); 'disunity' is optional, oblique. The prolific, little-noted Secondary Pattern has 'disunity' as Object; 'unity' is optional, oblique (*rock* = 'unity', *pieces* = 'disunity'):

42. I broke the rock into pieces. (Primary)
43. I broke pieces off the rock. (Secondary)

Each pattern has distinctive PPs and APs. *Off, in, to, into, up, down* are aspectual (more abstract) in the Primary, directional (more concrete) in the Secondary.

Trail can be either Object: in Primary (44), the fugitive, crossing the creek, "ends" the trail of his scent; in Secondary (45), the moose "begin" the trail.

44. They brought the dogs down to the creek, to where he [fugitive] broke the trail.... (Wolfe)
45. Moose break many trails through the snow. (Allen)

More Secondary examples follow (the head words of NP-Objects, PPs and APs are highlighted):

46. ...[seals] can easily break hauling *holes through* weak spots in the ice.... (Bruemmer)
47. ...the combined action of winds, tides, and waves breaks *loose* large *pieces* of the ice. (Schindler)
48. [He] broke his *way through* the bramble.... (Woolf)
49. She was too weak to break her *way out*. (Turnbull)
50. ...I broke my *way from* the ball-room *into* a small ante-chamber adjoining.... (Poe)
51. He then broke the drumsticks *off* the thighs... (Morris)
52. He broke his wrist *free*, flinging her hand and arm back... (Faulkner)
53. The Paterson strike broke out. (Reed)

Secondary *break*, in Levin's 1993 classification, is a Creation verb, making holes/pieces in (46-47). It's a Movement verb in (48-50), with possible PPs of Source-[S], Path-[D], and Goal-[G]; it's a Resultative (*the drumsticks off the thighs*) in (47-48). A Disunity Object moves to Subject in (49).

In both Primary (54) and Secondary (55), an Object head N can be implicit if its modifiers sufficiently account for its meaning:

54. He must break **[his relationship: R]** *with* his religion, tradition, and family.

(Nock)

55. ...marauding tribes who broke **[their way: D]** into history at the start of the Bronze Age... (Vidal)

In Secondaries, a unity can be implicit if indefinite or less important, or if inferable from the combination Object + Oblique: **[thigh+drumsticks]** (47). A unity's also inferable through a Lakoff & Johnson 1980 formula or commonplace: TIME IS A LINE.

We now have the insights required for 'luck'. Consider the following Secondaries, with implicit **[line]** as Unity; Source is **[from line]**. **[Way]**, a departure from the line, is the Disunity Object; it can also be used as path. *Direction* too can be either the original line or path (56). Paths can be explicit (*in some direction*) or implicit. [D], for Direction, is the implicit Disunity. Some heads of PPs are implicit too:

56. [A] ball bowled as if to break **[D]** *in one way* that actually breaks *in the opposite way*. (Oxford Advanced Learners Dictionary)
57. [He swings] at curveballs that break *toward him* rather than *away from him*. (Anderson)
58. "If they hit me from the front, break [in] this way [for] *one hundred yards*, then cut left." (Brower)
59. ...then we all broke [in] *our different ways*, to save whatever it was each of us thought we loved. (Jones)
60. That ball broke [for] *a foot* [from X to Y]. (Kubeck)
61. The putt will break [from] *left to right*. (Marr)

Unity 'line' can have implicit modifiers 'neutral/ even'. Votes break even or in/to one direction/side:

62. ...how the vote breaks in Peoria. (White)
63. ...probabilities break more or less *even*.... (Von Glaserfeld)
64. [He] considers himself lucky when he barely breaks *even* on the bookstore sale.... (Fischer)
65. ...from being a loser to being merely a nonwinner and at least breaking *even*. (Berne)

Disunity is 'change in direction, (de)parting (from line)'; it can pragmatically specify as 'change of favor/ fortune/luck':

66. The only bit of luck that didn't break [in] *his way* was a Washington Post story.... (Edds)
67. ...each of two dozen unsubstantiated events must break exactly *in Harrison Matthews's way*. (Gould)
68. "Started yesterday afternoon when I saw *the way* [in which] things were going to break." (Gilbert)
69. Luckily for him, certain issues [to make political gain] have broken [in] *his way* dramatically. (Cameron)
70. If it [vote] starts to break [in] *the president's way*, it will break *big* [in] *the p.'s way*. (Smith)

Goal-Paths in someone's favor or to someone:

71. I could only hope that something would eventually break *in our favor*. (Haldeman)
72. The impasse broke *in Smith's favor* in 1915. (Gould)
73. If Colonel Burr had cast his first vote, breaking the tie vote *in our favor*, he would have been the unanimous choice for president of all the Federalists in Congress. (Vidal)
74. Once Northern Wallaceites and undecided voters began to break *to Humphrey* in October, Nixon's percentage-point lead plummeted.... (Phillips)

Goal for someone; well and right are 'good luck':

75. "Something's going to happen, it's going to break for us, we're going to make it break *for us*!" (Wicker)
76. Things haven't been breaking too *well for Mr. Tolbert* lately.... (Stinnett)
77. The schedule breaks *right for the Suns* now and they're taking advantage of it. (Sporting News)

The *for*-phrase can be understood:

78. "Let's say, when things break naturally [for us], it's a pity not to use them." (MacInnes)
79. He paused for an appreciative murmur that swept through the court. Things are breaking perfectly [for me], he thought, smiling. (Asimov)

The opposite is *against someone*:

80. "...things are breaking *against me*...." (Wolfe)
81. Luck broke *against him*. (Winston Dictionary)

'Good' and 'bad' are often implicit, 'good' the unmarked default, 'bad' requiring more context:

82. ...taking the heat for a great many short-term problems which may frustrate his efforts and break his [good] luck. (Broder)
83. When the [good or neutral] luck of war wavered and broke [against them] and came [back in their favor] again.... (Sandburg)

At the start of my study of the verb *break*, I had less expectation that the noun would be monosemic too; but my data show comparable coverage.

84. My last memory would be on her. I couldn't have dreamed of a *better break* than that. (Ware)
85. Veterans get the *break* over rookies, superstars the break over stars.... (Spander)
86. "Dannenfelser is giving me a *break* on that beauty on Republic Street. He knocked his down payment down thousand bucks." (Green)
87. "These are my terms: show me where the body is and I'll do my best to get you a *break*." (Macdonald)
88. ...given the wrong set of *bad-luck breaks* (for instance, a Saudi decision to hold back production), world oil supply could run short of meeting needs in as little as ten years. (Bryon)
89. "Lost two fingers."/ "Jesus," Gunner sympathized, "what a *break*." (Wakefield)

Thus, a (lucky) break is a specific kind of break: something breaks line/neutrality and thus breaks its way from neutrality in a direction favorable to you.

There are many such seemingly irregular details subsumed in *break*, both noun and verb. By mystifying us, they challenge our capacities to understand. My larger purpose here is to give a caution that can free us from a mistake: our resources aren't limited to those assumed by polysemics. Making mysteries into polysemes or idioms can ease our puzzlement, but at the cost of insight. Monosemics doesn't grant exemption-by-idiom because it disallows quick answers; both database and explanation must be comprehensive. With luck, a break or two, my arguments here (and in a forthcoming full study of *break*) will show how to proceed.

REFERENCES

Fillmore, Charles. 1967. "The Grammar of Hitting and Breaking." In: *Readings in English Transformational Grammar 1967*, ed. by R. Jacobs & P. Rosenbaum, 120-133. Waltham, MA: Ginn.

Lakoff, George & Mark Johnson. 1980. *Metaphors We Live By*. Chicago: Chicago University Press.

Lee, Dorothy. 1950. "Codifications of Reality." In: *Styles and Structures*, ed. by Charles Kay, 157-71. New York: Norton.

Levin, Beth & Malka Rappaport Hovav. 1995. *Unaccusativity*. Cambridge, Ma: MIT Press.

Ruhl, Charles. 1989. *On Monosemy*. Albany, Ny: Suny Press.

ADDITIONAL COMMENT

An anonymous referee wonders "whether a model of lexical meaning is derivable from any amount of data." I'm not sure I can meet the full force of this remark, but the following is a brief summation of my views.

My use of actual data doesn't require or reflect a simple belief that induction will lead directly to generalizations. My arguments stand not on actual data as such, but on the intuitions I have about them; these data thus provide the same kind of evidence that other linguists hope to get only by conscious effort.

I need citations for HEURISTIC reasons, to create and multiply my intuitions and the intuitions of my readers. The data enable me to recognize things I intuitively know but wouldn't suspect without help. Actual data also reveals a complexity of detail rarely present in self-invented examples. In particular, CONTEXT is more evident and unavoidable; language in use counters the tendency of idealizations to believe data have no contexts until we explicitly provide some.

It follows then also that MANY data are required. Polysemic conclusions come from databases that are too selective; they create the divisions we find in them. With a larger database, we can intuit a wider and denser range of possibilities. Such a comprehensive range leads to different theoretical assumptions. What before seemed multiple and yet finite (as polysemy requires it) becomes, at different levels of abstraction, both unified and infinitely varied.

Consciousness knows relatively little about the biological systems that sustain it. Intuition alone likely cannot know directly what is solely semantic, nor does it need to. Conscious thought needs reference, less abstract levels, where the linguistic system has been modulated by the extralinguistic. We look for a semantic monoseme at levels where it has diversified into more concrete pragmatic polysemes. The multiple meanings in dictionaries are real enough, but our story shows us to be more talented than polysemics requires. Our theoretical visions must provide room for the more profound part of the story. We lack even expectation of the whole, discovery of which is the point of inquiry.

OBJECT MARKER IN KOREAN

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1. Introduction

The object marker *-ul* in Korean alternates with the direction particle *-e*(at, to), the place particle *-eso*(from), the beneficiary or recipient marker *-eke*(to), the material marker *-ro* (as), and the genitive particle *-ui*. Other case markers such as instrumental, agents, manner particle, etc., do not alternate with object markers.

Although Korean is SOV, the object marker appears in places other than the position before the transitive verb. The most widely accepted explanation for this distribution (Yim 1972, Lee 1988, and Sun 1993) is that *-ul* is an object marker when it comes before a transitive verb, and a non-contrastive emphasis topic marker elsewhere. ('Non-contrastive' means that the object marker emphasizes the accusatively marked NP itself, not contrasting it with any other NP. Yim does not include verbs with a direction, place, dative, material, or genitive marker since these are not considered to be transitive verbs.)

In this paper, I suggest that the Korean object marker has four semantic aspects: patient (no volition or intention), total affectedness, definiteness, emphasis. These four aspects are constantly present, but in different contexts one or the other is more salient. I argue that in contrast with direction, place, and material markers, the object marker is not a simple emphasis topic object marker, but an object marker which shows strong total affectedness. In contrast with dative or genitive markers, the object marker more saliently connotes totality plus emphasis. The total affected character of the object marker *-ul* contributes to make the object marker a notion of emphasis. The definiteness and patient character are also always there.

There are cases in which the object marker is used completely as an emphasis topic marker; however, such cases are rare. Such a situation occurs only when the object marker is not a necessary component of a sentence, and can be omitted without any problem of recoverability. In this case, the emphasis component of the object marker is the most salient semantic component, and *-ul* appears as a 'non-contrastive topic marker.' Korean sometimes behaves differently from other topic prominent languages in the following way:

Korean, which is a topic prominent language, has other emphasis topic markers such as *-un*. Unlike other topic prominent languages, although it has a topic marker, it sometimes utilizes the subject marker *-ka* and object marker *-ul* as emphasis markers. The difference between the regular topic marker *-un* and the alternates *-ka* or *-ul* is that *-un* has a contrastive meaning between NPs, but *-ka* and *-ul* do not have contrastive meanings. *-un* , *-ka* and *-ul* are in complementary distribution.

In what follows, we look at each of the uses of *-ul* noted above in order to illustrate *-ul*'s semantic functioning. We begin with examples in which the object marker alternates with the direction marker *-e*.

2. *Object Marker* -ul *and Direction Marker* -e

As Kuno (1972) noted, in English there is a small class of motion verbs that can be used with an object to specify where the motion takes place. For example,

(1) a. I climbed the mountain.
b. I crossed the river.

In Korean, some verbs of motion take NP-*ul* (*-rul* after vowel ending) as their objects as well. The sentences in (1) can be translated into Korean as

(2) a. nae ka san *ul* olakassta.
I the mountain climbed
b. nae ka kang *ul* konossta.
I the river crossed

More examples of the same type follow:

(3) a. san *ul* naeryokada 'to climb down the mountain'
b. kil *ul* kolokata 'to walk along the street'
c. hanul *ul* nalta 'to fly through sky'
d. pokto *rul* ttwiokata 'to run along the hallway'
e. maru *rul* kita 'to crawl the floor'

These verbs can also be preceded by NP-*e* phrases. In many cases, the difference in meaning is not obvious. If one questions Korean native speakers about examples (4 a) and (4 b), or (5 a) and (5 b), they will very likely be unable to describe the difference between the pairs.

(4) a. san *ul* olakada 'to climb the mountain'
b. san *e* olakada 'to climb the mountain'

(5) a. kil *ul* kolokata 'to walk along the street'
b. kil *e* kolokata 'to walk along the street'

On the basis of Kuno's hypothesis (1973: 93) concerning the total affectedness character of the Japanese object marker *-o*, we can guess that (4 a) indicates motion (that is, climbing), covering the whole dimension of the mountain (*san*), while (4 b) indicates that *san* is the goal of the movement. If we assume that a car is used to reach the top of a mountain, the mountain(peak) may be our goal, and that goal is reached by traversing the mountain from bottom to top. In this circumstance, we may concentrate on the goal (*-e*) or the traversing (-ul), and either expression in (6) is possible.

(6) a. nae ka san *ul* cha ro olakassta.
'I climb the mountain by a car.'
b. nae ka san *e* cha ro olakassda
'I climb the mountain by a car.'

But if we assume that one has gotten to the top of the mountain by airplane, the mountain is the goal of the "climbing", and it is not the case in which movement of climbing has covered the whole dimension of the mountain. Therefore, according to Kuno's hypothesis, san *e* should be acceptable, but not san *ul.* It is indeed the case, as shown in (7):

(7) a. nae ka san *e* bihaenggi ro olakassda
'I climbed (to the top of) the mountain by airplane.'
b. [*nae ka san *ul* bihaenggi ro olakassda]

If a helicopter is hovering over the top of the mountain in the air and one who is inside the airplane is about to descend upon the mountain, then the 'descent' does not cover the whole dimension of the mountain. Thus san *e* should be acceptable, but not san *ul*. Such is the case shown in (8).

(8) a. nae ka san *e* helicopter ro naeryokassta
'I descended on the mountain by helicopter.'
b. [*nae ka san *ul* helicopter ro naeryokassta]

Thus we can conclude that the object marker *-ul* has total affected character and NP-*ul* indicates that the motion designated by the verb takes place covering the entire dimension of NP, while NP-*e* indicates that NP is the goal of the motion designated by the verb.

The object marker also implies definiteness. Observe the following:

(9) a. [*nae ka amu san *ul* cha ro olakassta.]
any
[*I climbed any mountain by a car.']
b. nae ka amu san *e(na)* cha ro olakassda
'I climbed any mountain by a car.'

Thus (9 b) shows that the object marker signals definiteness.

3. Object Marker -Ul and Place Marker -Eso

Some Korean verbs are preceded by NP-*ul* and also by NP-*eso*. Consider the following example:

(10) a. President ka Houston-*eso* jikum tteonanta
from now is leaving
'The president is leaving Houston now.'
b. President ka Houston-*ul* jikum tteonanta
'The president is leaving Houston now.'

Native speakers of Korean can not easily distinguish the difference in meaning between these two sentences. (10 a) and (10 b) both mean probably the airplane in which the president is leaving Houston right now. However, we can presume that (10 a) indicates that Houston is the source of the movement (that is leaving), while (10 b) indicates motion, covering the whole dimension of Houston. If we assume that the president is on his way to Toronto, and people in Toronto are waiting for him, they may ask where he is right now. The answer could be either (10 a) or (10 b). If we assume the president's airplane is leaving from Houston airport now, and he is going to Dallas for his next stop and before arriving in Toronto, Houston is the source of the movement in (10 a): 'The president is leaving from Houston now.' However if the president finished his schedule in Houston and is leaving the city of Houston, then he is putting Houston behind in his trip as in (10 b). In this circumstance, either expression in (10) is possible.

However, as we've discussed above, if the movement of the verb tteonata covers the whole dimension of Houston, Houston *ul* will be acceptable, but not Houston *eso*. Thus assuming that one has very bad memory of Houston and wants to forget about Houston entirely, then Houston *ul* should be acceptable, but not Houston *eso*. This is the case, as shown in (11):

(11) a. nae ka Houston *ul* tteonassta.
'I left Houston.'/ 'I put Houston behind me.'
b. [*nae ka Houston *eso* tteonassta.]
[*'I left from Houston.']

Next, assume that one has a vacation trip and plans to leave from Houston Intercontinental Airport on Tuesday; the movement of the verb tteonata does not cover the entire dimension of Houston, thus Houston *eso* should be acceptable and not Houston *ul*. This is the case, as shown in (12).

(12) a. nae ka Houston IC airport *eso* bihanggi ro tteonassta
airplane by means of
'I left by airplane at Houston IC airport.'
b. [*nae ka Houston IC airport *rul* bihanggi ro tteonassta]
[*'I left Houston IC airport by airplane.']

The definiteness of the object marker -*ul* is shown in the following example:

(13) a. nae ka gonghang *eso* bihaenggi ro tteonassta
airport
'I left an airport by airplane.'
b. [*nae ka gonghang *ul* bihaenggi ro tteonassta]
[*'I left an airport by airplane.']

In (13 a) gonghang *eso* 'from any airport' is acceptable; but in (13 b) gonghang *ul* 'from any airport' is not acceptable.

4. Object Marker -ul *and Material Particle* -ro

In Korean, some verbs take either the object marker or the material particle for the first object NP as in the following:

(14) a. nae ka Nina *ro* anae *rul* samassta
wife made
' I made Nina my wife.'
b. nae ka Nina *ul* anae *rul* samassta
' I made Nina my wife.'

(15) a. nae ka namu *ro* uija *rul* mantulessta
wood chair made
' I made a chair out of wood.' (Material is wood)

b. nae ka namu *ul* uija *rul* mantulessta
' I made a chair out of wood.' (Material is that chunk of wood)

Discerning the difference in meaning between (14 a) and (14 b) is difficult for a native speaker. Whether 'Nina' was totally or partially affected by the action of the verb samta 'make' is difficult to tell since Nina is a person. However in (15), if one assumes the speaker has one piece of wood and used all of it to make a chair, namu *rul* is acceptable. In (15 a) namu *ro* doesn't have to be a whole chunk that the speaker has, but any piece of wood. Observe the following example:

(16) a. nae ka tol *ro* tokki *rul* mantulessta
rock ax
'I made an ax out of rock.'
b. nae ka tol *ul* tokki *rul* mantulessta
'I made an ax out of rock.'

In (16 b) tol 'rock' is considered one big unbroken mass; and in (16 a) tol 'rock' is just any stone, not necessarily one unbroken whole chunk. Thus, if the first NP cannot be a whole piece, the sentence which has NP *-ul* as the first NP is not acceptable, as shown in (17):

(17) a. hananim ka malssum *uro* saesang *ul* mantusiessta
God saying the world created
'God created the world by saying.'
b. *hananim ka malssum *ul* sesang *ul* mantusiessta

(17 b) is not meaningful, because malssum 'saying' cannot be a whole piece that can be converted or transferred to become the world.

In terms of definiteness, NP-*rul* should be definite.

(18) a. nae ka **yoja** *ro* anae *rul* samassta
woman wife made
'I took a woman for my wife.'
b. [*nae ka **yoja** *rul* anae *rul* samassta]
[*'I took a woman for my wife.']
c. nae ka **kuyoja** *ro* anae *rul* samassta
the woman wife made
'I took the woman for my wife.'

d. nae ka **kuyoja** *rul* anae *rul* samassta
'I took the woman for my wife.'

(18 a) is acceptable only if the speaker is homosexual and it has the meaning 'I took a woman (not a man) for my wife.'. Otherwise, this sentence sounds funny. (18 b) is totally unacceptable in any case. However, if 'a woman' is changed to 'the woman', both sentences are acceptable as in (18 c) and (18 d). Thus it shows the definiteness aspect of the object marker *-ul*.

5. Object Marker -ul *and Dative Particle* -eke

In English there is a small class of ditransitive verbs which take either double objects as in (19 a) or one direct object and 'to' as in (19 b):

(19) a. I gave Nina a hat.
b. I gave a hat to Nina.

The sentences in (19) can be translated into Korean as (20):

(20) a. nae ka Nina *rul* moja *rul* juossta
a hat give
'I gave Nina a hat.'
b. nae ka Nina *eke* moja *rul* juossta
to a hat gave
'I gave a hat to Nina.'

Verb juta 'give' always requires a non-human direct object and an animate indirect object. Thus if there are two human objects in a sentence with juta, it is unacceptable.

(21) a. [*Jack-i John-*ul/eke* Nina-*rul* ju-essta]
Jack-sm John-om/dm Nina-om give-past
[*'Jack gave John Nina']
b. Jack-i John-*ul/eke* cookie-*rul* ju-ess-ta
Jack-sm John-om/dm cookie-om give-past
'Jack gave John cookies'

To tell any difference between Nina-*rul* and Nina-*eke* in (20) is difficult for the native speaker. However, we can guess that (20 a) indicates the motion juta 'give' covers the whole dimension of Nina, while (20 b) indicates that Nina is the beneficiary of the movement. Whether the action of 'giving' totally or partially affected Nina is difficult to decide since Nina, the beneficiary, is a person. However, observe the following example:

(22) a. nae ka pat *e(ke)* mul *ul* juossta
field water in part
'I watered the field.'
b. nae ka pat *ul* mul *ul* juossta
'I watered the field.'

If we assume one watered the entire field, both (22 a) and (22 b) are acceptable, However, if we assume that one watered only part of the field, we can predict that pat *e* should be acceptable, but not pat *ul* as shown in (23).

(23) a. nae ka pat *e(ke)* mul *ul* ilbu juossta.
in part
'I partially watered field'
b. [*nae ka pat *ul* mul *ul* ilbu juossta]
[*'I partially watered field.']

Thus the total affectedness character is again evidenced here.

The difference between Nina-*rul* and Nina-*eke* in (20) has been discussed. The accusative patient is the participant which is most affected by the event.

The accusative patient has no control over the event, but the dative patient has a little more control over the event. In the case of a causative verb, NP-*eke* is more widely accepted as a grammatical sentence, than NP-*rul*, because NP-*eke* has more control over the event. This is shown in (24).

(24) a. [*nae ka aeki *rul* os-ul ipkehessta]
baby clothes make him wear
[*'I made my baby wear clothes.']
b. nae ka aeki *eke* os-ul ipkehessta
'I made my baby wear clothes.'
c. nae ka aeki *eke* os-ul iphiessta
clothed
'I clothed my baby.'
d. nae ka aeki *rul* os-ul iphiessta
'I clothed my baby.'

Ipkehessta 'make one to wear' allows more control over the agent (aeki *eke*) of the complement clause than iphiessta 'to cloth one'. While (24 a) assigns minimal control to the baby, (24 b) allows that the baby has retained more control. In other words, while (24 a) implies that the causee 'baby' retains little or no control, (24 b) implies that the causer 'I' worked indirectly on the causee to get him to wear clothes (i.e., persuading him without the use of force). The reason (24 a) is asterisked is because the verb ipkehessta 'make one to wear' allows more freedom to the causee 'baby', but 'baby' takes the object marker that does not signal agentiveness to 'baby'. The 'total affectedness' is realized in the sense of force and direct causation as well as total control over the causee. In (24), the causee 'baby' with the accusative case is supposed to be totally affected by 'me', meaning that the baby has less control over the action in comparison with the baby marked with the dative case. Givon (1984: 157) asserts:

> "Nominal object of the manipulative verb ('tell', 'order', 'force', 'make', 'ask', 'prevent' etc.) has a double role. Vis-a-vis the complement verb they are agent. Vis-à-vis the manipulative main verb they are datives. However, in terms of morphological marking, they often appear as direct objects."

In summary, Givon states that, aeki-*eke* is semantically more likely, but on the surface, both aeki-*eke* and aeki-*rul* can appear in terms of morphological marking. This is true in Korean. For example, other causative verbs like sikita 'make a person do' allow both. Observe the following example:

(25) a. nae-ka John-*ul* kongbu-*rul* sikiessta
I-sm John-om study-om made him to study
'I ordered John to study.'
b. nae-ka John-*eke* kongbu-*rul* sikiessta
I-sm John-dm study-om made him to study
'I ordered John to study.'

If we summarize, the noun phrase which is followed by the object marker *-ul* is more likely to be totally affected and exert less control over the event. It is also more definite as shown below in (26).

(26) a. [*nae-ka **yeoja-*rul*** simpurum-*ul* sikiessta]
woman errand
[*'I made a woman do some errand.']
b. nae-ka **yeoja-eke** simpurum-ul sikiessta
'I made a woman (not a guy, but a female) do some errand.

c. nae-ka **kuyeoja-*rul*** simpurum-*ul* sikiessta
that woman errand
'I made the woman do some errand.'
d. nae-ka **kuyeoja-eke** simpurum-ul sikiessta

Yeoja 'a woman' is not definite, and yeoja-*rul* is not acceptable in (26 a), but yeoja-*eke* is acceptable in (26 b). This shows the constant definiteness of the object marker -*ul*.

6. *Object Marker* -ul *and Genitive Particle* -ui

The genitive marker contrasts with the object marker. Consider the following examples:

(27) a. nae ka Nina-*ui* son-*ul* japassta
hand grabbed
'I grabbed Nina's hand.'
b. nae ka Nina-*rul* son-*ul* japassta
'I grabbed Nina's hand.'

In (27), the difference in meaning between (27 a) and (27 b) is again difficult to see for the native speaker. Consider the following example (28).

(28) a. nae ka Nina-ui chek-*ul* kaji essta
book got
'I've got Nina's book.'
b. [*nae ka Nina-rul chek-ul kaji-essta]
[*'I've got Nina's book.']

The reason (28 b) is ungrammatical is that there is no obvious connection between the first NP and second NP. In other words, if it is obvious from the choice of lexical items that the second NP belongs to the first NP, the first NP can take -*ul* instead of -*ui*. However, if two NPs are separable, using -*ul* instead of -*ui* is not acceptable. In other words, -*ul* does not have a genitive meaning. The genitive meaning is implicit in the relation between two NPs as in (27 b). Consider more examples:

(29) a. nae ka namu-*ui* kaji-*rul* jalassta
tree branch trimmed
'I trimmed the tree branch.'
b. nae ka namu-*rul* kaji-*rul* jalassta
'I trimmed the tree branch.'

(30) a. nae ka sanyangkkun-*ui* jip-*ul* ppeasassta
hunter house took away
'I took away the house from the hunter.'
b. [*nae-ka sanyangkkun-*ul* jip-*ul* ppeasassta]
[*'I took away the house from the hunter.']

Again in (30 b), using -*ul* instead of -*ui* is not grammatical because sanyangkkun 'the hunter' and jip 'the house' are not relative terms. Thus -*rul* cannot appear with the first NP since there is no obvious connection between two NPs.

The difference in meaning between (27 a) and (27 b) is the following: sentence (27 a) means "I grabbed Nina's hand", while (27 b) means "I grabbed Nina by grabbing her hand." Thus in (27 b) Nina is emphasized, while in (27 a) Nina's hand is emphasized. In (27 a), Nina is not totally affected, only Nina's hand. In (27 b), Nina and Nina's hand are both totally affected. Thus in (27 b), there is a possibility that there are two equally affected objects. If one likes only flowers of the tree, and not the tree itself, then we can predict namu *ui* kkot ul should be acceptable, but not namu rul kkot ul in (31):

(31) a. nae ka jo namu ***ui*** kkot *ul* joahanta
that tree flower like
'I like flowers of the tree.'
b. [*nae ka jo namu ***rul*** kkot *ul* joahanta]

Of course, if one likes the flowers and the tree equally, then (31 b) is acceptable.

The definiteness character of the object marker is shown in (32):

(32) a. nae ka namu ***ui*** kkot *ul* joahanta
'I like flowers of a tree.'
b. [*nae ka namu ***rul*** kkot *ul* joahanta]
[* 'I like flowers of a tree.']
c. nae ka jo namu ***ui*** kkot *ul* joahanta
'I like flowers of the tree.'
d. nae ka jo namu ***rul*** kkot *ul* joahanta
'I like flowers of the tree.'

(32 b) is not grammatical, although (32 d) is. (32 d) has the definite marker jo 'the' inside the sentence. Thus the sentences of (32) confirm the definiteness of the object marker.

The total affected characteristic of the object marker *-ul* contributes to making the object marker into a marker of emphasis. According to Yim (1972: 89), emphasizing means making the NP a non-contrastive topic. Korean has a topic marker *-un* whose function is basically to contrast an NP with *-un* with other possibilities. For example,

(33) Johnny-ka mori-*un* chota.
brain-topic marker good
'Johnny has a smart brain.'

The connotation of sentence (33) could be that, e.g., Johnny may not be good-looking, or he may not have a good heart, etc., but he does have intelligence. Yim (1972: 89) claimed that *-ul* is a topic marker as *-un* is, but not a contrasting topic marker like *-un*, It is an empathizing topic marker. He further claimed that *-ul* is only a regular object marker in cases in which it is used as an object of a transitive verb. According to Yim, other occurences of *-ul* are all topic uses. I showed above it is not true in the location, place, material, dative, genitive cases.

7. Topic Object Marker

However, I think we do have a topic object marker *-ul*. In this case, the object marker is not always necessary to complete the sentence, but it is more or less redundantly used. The evidence for this is shown in the way that a sentence can be perfectly grammatical even without an object marker. Consider the following examples:

(34) a. nae ka jip set *ul* palassta
house three sold
'I sold three houses.'
b. nae ka jip ***ul*** set *ul* palassta
'I sold three **houses**.'

(35) a. nae ka suhak *ul* yonkuhessta
math studied
'I studied Math.'
b. nae ka suhak *ul* yonku ***rul*** hessta
'I **studied** Math.'

(36) a. nae ka jip *e* kassta
home went
'I went home.'
b. nae ka jip *e* ***rul*** kassta
'I went **home**.'

(37) a. nae ka tongsaeng *ul* johahanta
brother like
'I like my brother.'
b. nae ka tongsaeng *ul* joha ***rul*** hanta
'I **like** my brother.'

All the (a)-sentences lack object markers, but (b)-sentences have *-ul*s. However all the (a) sentences are perfectly grammatical and they are the more commonly used as everyday sentences. The (b) sentences are not used regularly and the function of the additional *-ul* in the (b) sentences is only to empathize with the NP to which -ul is attached. However, here, the other semantic features of *-ul* – totality, patient, definite – are downplayed. Thus I think only in these cases the object marker functions as a 'topic' object markers.

8. Conclusion

Korean object markers, which are not before a transitive verb, are not all emphasis topic markers. They still function as object markers that show strong total affectedness and definiteness in contexts in which they contrast with locative, material, dative, and genitive markers. I believe the total affectedness character of *-ul* can imply emphasis with the object marked NP and it shows up fully when the object marker is used as a redundant marker. Thus the Korean object marker consistently signals 'patient', 'total affectedness', and 'definite' characters; however 'total affectedness' and 'definite' have created a sense of 'emphasis' which can sometimes be the primary function of the object maker *-ul*. This is an area which deserves further research.

REFERENCES

Givon, T. 1984. *Syntax: A Functional Typological Introduction*. Amsterdam: Benjamins.

Kuno, Susumu. 1973. *The Structure of the Japanese Language*. Cambridge, MA: MIT Press.

Lee, Hyo Sang. 1982. *Korean: Papers and Discourse Data.*

Lee, Kwangho. 1988. *Korean Object Marker Study*. Seoul: Kukohakhwe.

Plank, Frans. 1984. *Objects: Toward a Theory of Grammaticalization.*

Sun, Wooyong. 1993. *Korean Case Marker -i/-ka and -ul/-rul Study*. Masters thesis, Seoul University.

Yim, Hongbin. 1972. " The Study of Korean Topic." *Kukoyonku* 28.

VI

DISCOURSE ANALYSIS

LEXICAL REPETITION AND THE GIVEN/NEW DISTINCTION IN WRITTEN ENGLISH

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1. The Problem

The given information / new information distinction has several different definitions in the approaches of different linguists. For example, M.A.K. Halliday declares given information to be that 'presented by the speaker as recoverable . . . to the listener' (1994:298) and that 'the speaker presents [new information] as not being recoverable from the preceding discourse' (1967:204). Jan Firbas on the other hand perceives the distinction in terms of a cline in which the newest information is the 'element towards which a sentence or subclause is oriented . . . the most dynamic element within the sentence or subclause' (1992:8). Both of these approaches take the clause as the matrix of the distinction, but other approaches see given information and new information distinguished within the discourse as a whole. Wallace Chafe identifies given information cognitively as 'concepts that were already active for the speaker . . . and that were assumed to be already active in the mind of the hearer', and new information as 'concepts that the speaker . . . transferred from the inactive to the active state' (1987:32).[1] Talmy Givon declares that 'maximal-continuity anaphoric devices signal . . . continued activation of the current topical referent' and that 'discontinuous anaphoric devices . . . signal the terminated activation of the current topical referent, and activation of another topic' (1995:72).

The approach taken to given/new in this study is discoursal, rather than as a function within clause grammar. Given and new are taken as the opposite ends of a cline. Givenness is proportional, and represents the degree of semantic continuity between some lexical element or anaphoric lexical equivalent in a written text and lexical elements or anaphoric lexical equivalents which have preceded it. This limited approach specifically excludes phenomena which otherwise deserve to be considered: e.g., spoken text, within types of discourse; and homophoric reference (Halliday 1994:314), morphological concord, and zero-anaphora within types of given information (cf. Firbas 1992:31-33; Givon 1983:17).

One reason this approach has such exclusions is because it is the basis of a computational parsing of given/new. Lemmatized written English text is entered into a computer with inflected lexis reduced to citation forms and pronouns reduced to their lexical antecedents. A PROLOG language parser matches each successive lexical form paired with each lexical form which precedes it against a lexico-semantic knowledge base which yields the degree of their semantic connection. This knowledge base is a costed semantic graph in the form of a systemic-functional system network. Traversal of the graph between any two nodes corresponding to items in the text yields a semantic distance. The givenness of any item in the text with respect to any preceding item is the inverse of the semantic distance between them, and the net givenness of any item with respect to a span of preceding items is the sum of such products.

The computer output takes the form of the lemmatized text interlineated with numerical values representing the relative degree of givenness for each lexical item. This output can be conveniently recast in the form of a line chart (Fig. 1) in which the value for each item is plotted against a scale and connected by a continuous line. The numeric interval between given and new (represented by the horizontal) is taken to be the most plausible consistent through the text, and has proven to be relatively constant from text to text. A few simple rules of interpretation make it possible to use this output as a guide to the location of tonics in spoken performance, and thus to the interpretation of given/new also within the clause grammar perspective (Cummings 1995a,b; 1996; forthcoming).

Application of this procedure to a variety of different texts reveals an interesting practical problem. Randomly selected specimen texts show that givenness tends to be realized as anaphoric reference or lexical iteration, that is, by pronouns and deictic-headed nominal groups, or by repetition of lexical root morphemes. Much less frequently is givenness realized by synonymy or lexical association. The more frequent phenomena can be categorized as 'lexico-semantic iteration', insofar as both anaphoric reference and lexical iterations together constitute iteration of a semantic kind. The less frequent phenomenon depends on semantic inference. However, the computational analysis just described detects iteration by relatively trivial means, and is chiefly designed to detect significant inferential effects. Testing it adequately thus requires a supply of just those rare texts which show a relatively high proportion of information whose givenness follows from semantic inference.

2. *Proposed Solution*

A solution to this problem has certain requirements. First, because specimen texts which show significant semantic inference in relatively large proportions are rare, the procedure for finding them has to cover a large amount of text. Second, the object of search is a relatively short text with relatively high density of inferentially given information. This implies that the search procedure must segment text into such short units. Third, the procedure must also make for an easy identification of pronominal forms and lexical repetitions, or an easy identification of inferential anaphora, or both. Fourth, the procedure must result in quantitative comparisons of the iterative and/or inferential phenomena among the segments of the text analyzed; and fifth, it should show a frequency distribution of the quantities detected.

The key requirement is the third: the identification of the lexico-semantic characteristics of each segment of the text. It is far easier to recognize pronominal and deictic forms, and to recognize the repetition of the same lexical root within a

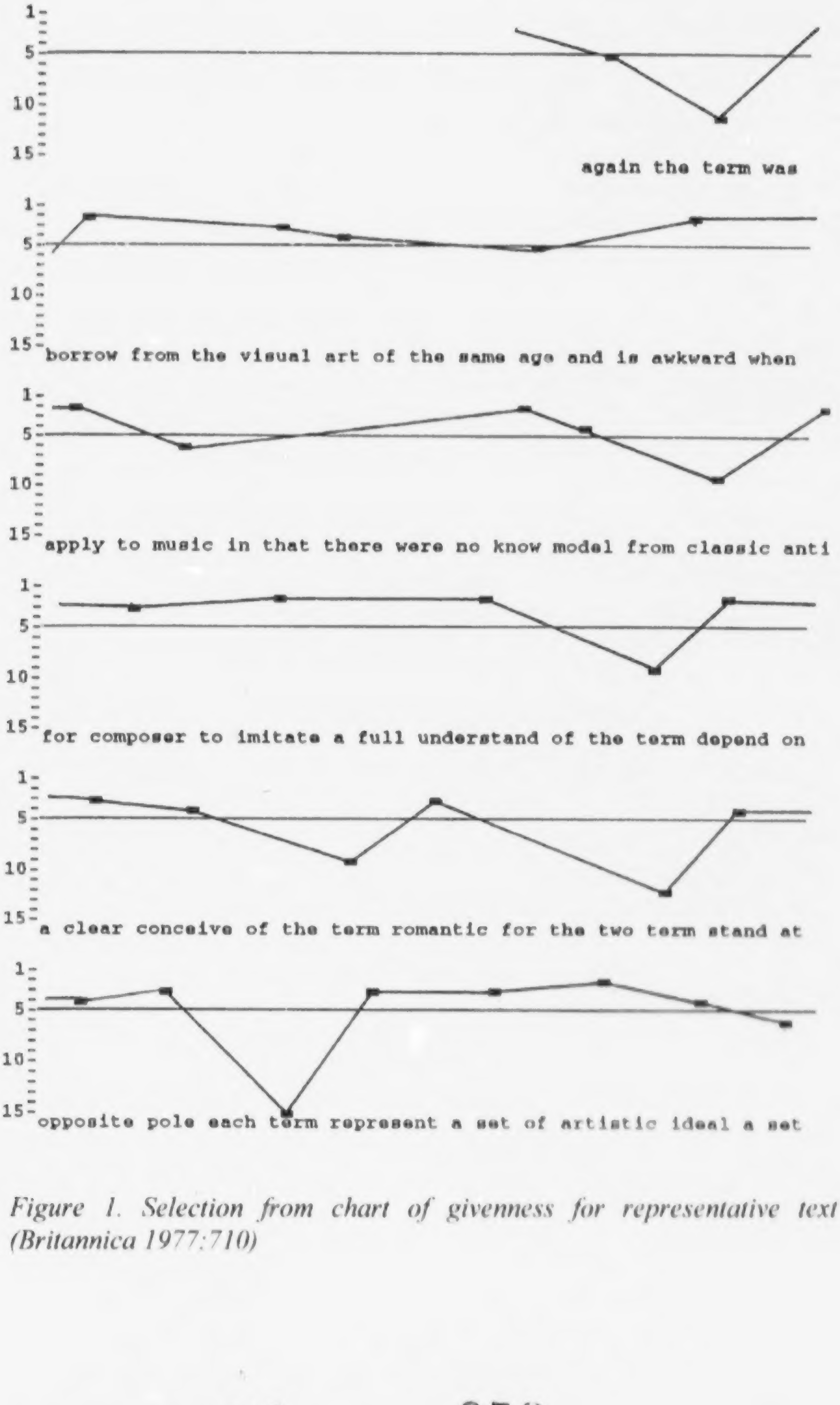

Figure 1. Selection from chart of givenness for representative text (Britannica 1977:710)

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modest span of text than it is to recognize lexical roots which are significantly related by synonymy or association. A procedure which limits itself to this kind of detection has the merit of simplicity, but actually detects the characteristics which are opposite to the one sought. However, an assumption is made that segments of a large text which show a relatively low proportion of lexico-semantic iteration in comparison with other segments of the same text have a high probability of showing a high density of given information which is inferential. The results of applying this indirect procedure appear to bear out the assumption.

Thus the fourth and fifth requirements are also limited to the quantification of iterative phenomena: specifically, the incidence of selected pronominal and deictic forms, and the repetition of lexical root morphemes. Each segment of the text will be measured out as representing a fixed number of selected tokens of grammatical anaphora plus the lexical items. Each segment so measured will be associated with the number of such tokens and items within it which constitute lexico-semantic iteration. The final result will be the arrangement of the quantities for each segment into a frequency distribution chart in order to determine the extremes of the range of values. It is the segments at the low end of the range which are reckoned to have a good chance of having a high density of inferential, rather than iterative, given information.

3. Computational Methodology

The requirement that the search procedure analyse a large amount of text dictates a computational method, which is implemented in PROLOG by fairly conventional means. The algorithm breaks down the input file character by character, and reconstitutes the word forms as PROLOG lists of characters. Spaces, CRs, and punctuation signal the end of each word-form list and are not included in it. However, the word forms with their original spacing and punctuation are also output continuously into a new file. The number of word-form lists retained in a span for analysis at any point in the execution is chosen by the operator at run-time. Each new word form is scrutinized against a table of function words (excluding anaphoric pronouns) for elimination from the span, so that the span is limited to just those pronouns and lexical items.

Before each surviving word is entered into the span, it is scrutinized against a table of the anaphoric pronouns (Fig. 2); if so identified, it is counted as an iteration, an asterisk is entered into the output stream immediately preceding the form, and a token empty list is entered into the span to represent pronoun. Otherwise the form is reckoned to be lexical, and scrutinized against a table of inflectional morphemes (Fig. 3), which are eliminated, so that what will be entered into the span is something more representative of the lexical root. Before its entry into the span, the span is parsed against this form to detect a lexical iteration, which is added to the count if it occurs, together with an asterisk in the output stream immediately preceding the form. When any pronoun token or lexical root form is added to the span, the most

```
filter_prns([w,h,o]).
filter_prns([w,h,o,s,e]).
filter_prns([w,h,o,m]).
filter_prns([w,h,i,c,h]).
filter_prns([w,h,e,r,e]).
filter_prns([t,h,e,r,e]).
filter_prns([h,e]).
filter_prns([h,i,s]).
filter_prns([h,i,m]).
filter_prns([s,h,e]).
filter_prns([h,e,r]).
filter_prns([h,e,r,s]).
filter_prns([i,t]).
filter_prns([i,t,s]).
filter_prns([t,h,e,y]).
filter_prns([t,h,e,i,r]).
filter_prns([t,h,e,i,r,s]).
filter_prns([t,h,e,m]).
filter_prns([h,i,m,s,e,l,f]).
filter_prns([h,e,r,s,e,l,f]).
filter_prns([i,t,s,e,l,f]).
filter_prns([t,h,e,m,s,e,l,v,e,s]).
filter_prns([n,o,n,e]).
```

Figure 2. Table of selected anaphoric pronouns in PROLOG form.

```
filter_suffix([e]).
filter_suffix([s]).
filter_suffix([y]).
filter_suffix([e,d]).
filter_suffix([e,s]).
filter_suffix([i,e,s]).
filter_suffix([i,e,d]).
filter_suffix([e,n]).
filter_suffix([i,n,g]).
filter_suffix([l,y]).
filter_suffix([e,d,l,y]).
filter_suffix([i,n,g,l,y]).
filter_suffix([i,l,y]).
```

Figure 3. Table of selected inflectional morphemes in PROLOG form.

distant item in the span is purged.

Another count is kept of read word-forms which are at least eligible to represent semantic iterations (i.e., the selected anaphoric pronouns and all non-functional words). Each time this periodic count reaches 100, the count of actual iterations is intruded into the output stream together with a serial number for just that segment of text. When the text has been completely read, the same data is output again in four different forms. First, the computer prints out a list of the iteration counts for each numbered segment in sequence. Second is a list of the same iteration counts this time ordered from lowest count to highest. Third is a list of iteration counts for each consecutive triad of segments, also ordered from lowest count to highest.

The fourth such output is a frequency distribution curve for the counts. This output is in the form of a bar graph in which each bar represents by its length the number of segments having a particular number of iterations, ranging from the lowest number of iterations to the highest. The curve is read as a line connecting the tops of the bars. The computer completes the output by calculating and printing the median and the mean iteration counts.

4. Results for One Text

All of the long texts subjected to this analysis so far have been literary works downloaded from the internet. These include five novels by Henry James and one novel by E.M. Forster. All of the results reported here are from analysis of Henry James' novel *The Europeans* (Project Gutenberg 1994). The analysis divides this novel of approximately 60,000 running words into 328 segments. The repetition span was set for 30 items[2]. Figures 4, 5, and 6 show abbreviated outputs of the count of iterations for each segment. Figure 4 shows an output list in which the first figure in each pair is the segment number, and the second figure the number of iterations counted in that segment, from the first segment to the last. Figure 5 however shows an output list in which the first figure in each pair is the number of iterations counted in a segment, starting with the lowest; the second figure is the segment number. Figure 6 shows an output list in which the first figure in each pair is the number of iterations counted in three consecutive segments, starting with the lowest number; the second figure is the number of the segment which is first in each set of three.

The frequency distribution curve of iteration counts output for *The Europeans* is represented in edited form in Figure 7. The number of iterations and the number of segments with that count is printed at the base of each bar. Like Figure 5, this chart indicates that the range of counts is from 11 iterations counted in one segment through to 58 iterations counted in another one segment. The shape of the curve indicates an approximation to normal distribution. The final outputs for this novel are a median value of 34 iterations and a mean value of 34.41 iterations.

These outputs permit the identification of the segments of the novel having the most extreme proportions of lexico-semantic iteration. A cursory comparison shows that the dozen or so segments at each extreme have very similar stylistic characteristics. The 11 segments with the lowest proportion of semantic iteration (11 to 19 iterations) are in almost every case exclusively or at least predominantly descriptive passages in which the reader is taken into a new situation. One of these segments is half dialogue. The 13 segments with the highest proportion of semantic iteration (50 to 58 iterations) are in almost every case exclusively or predominantly dialogue passages in which the speakers repeatedly refer to themselves with 1st- and 2nd-person pronouns, and each speaker often repeats the same words and phrases s/he has just heard from the other. One of these segments is half narrative.

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1-14 2-22 3-21 4-17 5-31 6-34 7-33 8-33 9-46 10-38 11-23 12-28 13-25
14-38 15-33 16-29 17-37 18-11 19-22 20-33 21-25 22-25 23-28 24-28
25-31 26-40 27-20 28-19 29-19 30-29 31-36 32-53 33-40 34-39 35-41
36-42 37-41 38-16 39-34 40-30 41-47 42-45 43-33 44-33 45-45 46-46
47-27 48-41 49-46 50-37 51-35 52-46 53-32 54-30 55-31 . . .
                          . . . 284-37 285-54 286-34 287-21 288-33 289-38 290-42
291-44 292-32  293-42 294-44 295-42 296-42 297-26 298-32 299-31
300-36 301-41 302-32 303-43  304-41 305-27 306-35 307-31 308-47
309-40 310-42 311-33 312-31 313-33 314-37  315-32 316-41 317-48
318-29 319-27 320-33 321-47 322-36 323-29 324-28 325-43  326-30
327-32 328-25
```

Figure 4. Output of iteration counts for segments in serial order for Henry James, The Europeans

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11-18 14-1 14-94 15-275 16-38 17-4 17-93 19-28 19-29 19-107 19-154
20-27 20-79  20-96 20-145 20-165 20-270 21-3 21-61 21-78 21-177
21-271 21-287 22-2 22-19 22-135 22-204 22-240 23-11 23-77 23-155
23-157 23-241 23-255 24-113 24-126 24-161  24-273 25-13 25-21 25-22
25-108 25-146 25-269 25-276 25-328 26-95 26-127 . . .
                                  . . . 43-128 43-184 43-206 43-207
43-251 43-303 43-325 44-83 44-150 44-170 44-211 44-212 44-229
44-232 44-291 44-294 45-42  45-45 45-119 45-180 45-182 45-199 45-225
45-263 46-9 46-46 46-49 46-52 47-41 47 -281 47-308 47-321 48-69
48-142 48-278 48-317 49-143 50-121 50-200 50-279 50-280 51-198
52-195 53-32 53-132 53-194 53-238 54-285 55-185 58-131
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Figure 5. Output of iteration counts for segments ordered by proportion for Henry James, The Europeans

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57-1 57-93 58-27 60-2 60-94 64-77 66-18 66-269 67-28 67-92 69-3
69-153 70-17 71 -154 71-275 73-268 74-175 75-95 75-107 75-145 75-155
75-240 75-273 76-11 76-144  76-176 76-274 77-16 77-59 77-76 77-239
78-21 78-78 78-106 78-152 79-26 79-241  80-19 80-38 80-91 81-22 81-96
81-174 82-4 83-20 83-216 83-270 84-29 84-133 84-217 85-218 85-242
86-89 86-159 86-202 . . .
                             . . . 124-35 124-44  124-48 124-180 124-205 124-251
124-289 125-41 125-128 125-284 126-228 126-237  127-168 127-206
127-223 127-229 127-230 128-142 128-211 128-280 128-293 128-294
129-31 129-277 129-308 131-185 131-196 132-32 132-195 133-183
134-141 135-119  135-184 135-197 136-192 140-129 143-131 146-193
146-194 146-198 147-279 148-278  151-130
```

Figure 6. Output of iteration counts for each 3 segments, ordered by proportion, for Henry James, The Europeans

One pair of consecutive segments chosen at random from each of these two contrasting groups illustrates both the successes and limitations of the method. Figure 8 represents segments 28 and 29, towards the low end of the iteration curve, together with bits of the preceding and following segments. 21 non-iterative forms have been bolded because they suggest strong inferential connections with preceding forms within a span of 30, which have been italicized. These connections are limited to a close synonymy: e.g., *sunday* (14) **sabbath** (16); hyponymy: e.g., **tree** (7) *elm* (7); meronymy: e.g., *garden* (4) **shrub** (5); or co-relations: e.g., *house* (4) **garden** (4); *girl* (9) **lady** (12). However not all of these forms actually have the status of given information within the discourse structure of the text. 'Trees' (7) may be unmistakably given, but no intelligent spoken performance of the text would render 'garden' (4) as a return to given information within the flow of new information which its clause mostly constitutes.

Figure 9 represents text at the high end of the iteration curve, segments 131 and 132. Some of the same inferential connections are found, but in lesser proportions: synonymy: e.g., *promise* (12) **pledge** (12); hyponymy: e.g., *gertrude* (16) **girl** (19); and co-relations: e.g., *girl* (19) **sister** (20). Again, not all of these fewer inferentials could be construed as actually given information, e.g., 'pledge' (12). The designation of inferential connections excludes items from a set containing 'say', 'answer', 'word', 'hear', 'listen', 'declare', 'voice', 'cry', 'rejoin', 'reply', which are used variously by both the narrator and by the characters themselves to signify reported speech. Also excluded are items from another set, 'mind', 'think', 'mean', 'know', which are used by the characters to designate reported mental processes. It is assumed that the reportorial function of these items excludes them altogether from inferentially derived givenness (but not all from iterative givenness).[3]

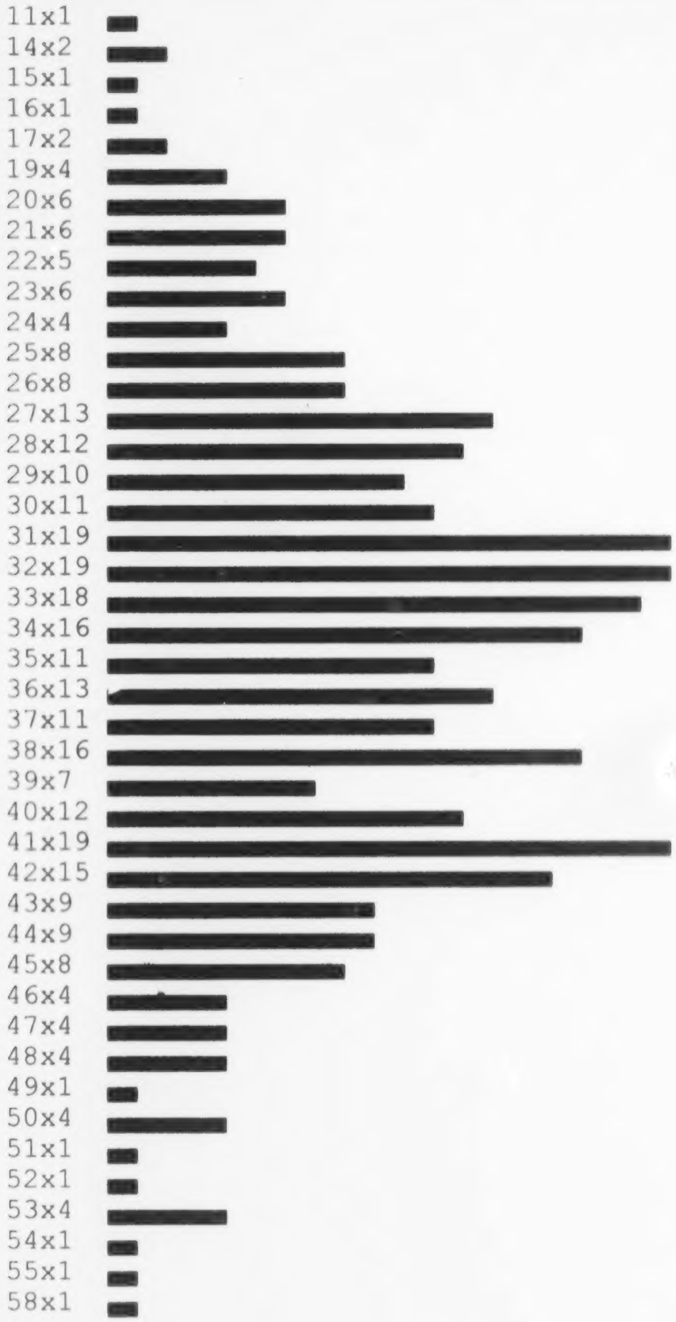

Figure 7. Frequency distribution of iteration counts for Henry James, The Europeans

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This comparison of the two stretches of text in Figures 8 and 9 (on the following pages) shows the potential utility of the analysis, but also suggests opportunities for methodological refinements. 1st- and 2nd-person personal and reflexive pronouns have neither been treated as pronouns nor screened out as function words in the computation; instead they have been counted with the lexical iterations when they repeat on the assumption that they are exophoric rather than endophoric references (Halliday and Hasan 1976:33; Firbas 1992:24). But it could be argued that in narrative they are usually endophoric pronouns with named characters as antecedents. Items 'it' and deictic 'there' are treated as if anaphoric pronouns; 'it' is inevitably sometimes a dummy subject, and the text analysed suggests that 'there' is usually a dummy subject. The analysis neglects the distribution of the deictics 'this' and 'that' even when used pronominally as the head of a nominal group. Also neglected is the possibility of a lexical resumption after pronominalization (e.g., Fig. 8-36 'house'). Nevertheless, a way has been indicated for the identification of parts of large texts in terms of their proportions of semantic iteration and semantic inference.[4]

1 the next day was splendid, as felix had prophesied; if the winter had suddenly
2 leaped into spring, the *spring had for the moment as quickly *leaped into summer.
3 this was an observation made by a young girl *who came out of a large square
4 *house* in the country, and strolled about in the spacious ***garden*** *which separated
5 *it from a muddy road. the **flowering shrubs** and the neatly-disposed **plants** were
6 basking in the abundant light and warmth; the transparent shade of the great *elms*--
7 *they were magnificent **trees**--seemed to thicken by the hour; and the intensely
8 habitual stillness offered a submissive medium to the sound of a distant church-bell.
9 the young *girl* listened to the *church-*bell; but *she was not dressed for *church.
10 *she was bare-headed; *she wore a white muslin [27-20] waist, with an
11 embroidered border, and the skirt of *her dress was of colored *muslin. *she was
12 a *young ***lady*** of some two or three and twenty years of age, and though a *young
13 **person** of *her **sex** walking *bare-*headed in a garden, of a *sunday* morning in
14 spring-time, can, in the nature of things, never be a displeasing object, you would
15 not have pronounced this innocent **sabbath**-breaker especially pretty. *she was tall
16 and pale, thin and a little awkward; *her hair was fair and perfectly straight; *her
17 eyes were dark, and *they had the singularity of seeming at once dull and
18 restless--differing herein, as *you see, fatally from the ideal "fine *eyes," *which
19 we always imagine to be both brilliant and tranquil. the doors and windows of the
20 large square *house* were all wide open, to admit the purifying sunshine, *which lay
21 in generous patches upon the **floor** of a *wide, high, covered piazza adjusted to two
22 sides of the ***mansion***--a *piazza on *which several straw-bottomed rocking-chairs
23 and half a dozen of those small cylindrical stools in green and blue [28-19]
24 porcelain, *which suggest an affiliation between the ***residents*** and the eastern trade,
25 were symmetrically disposed. *it was an ancient ***house***--*ancient in the sense of
26 being eighty years old; *it was built of wood, painted a clean, clear, faded gray, and
27 adorned along the front, at intervals, with flat *wooden pilasters, *painted white.
28 these *pilasters appeared to support a kind of classic pediment, *which was
29 decorated in the middle by a large triple ***window*** in a boldly carved frame, and in
30 each of *its smaller angles by a **glazed** circular **aperture**. a large *white ***door***,
31 furnished with a highly-polished brass **knocker**, presented *itself to the
32 rural-looking road, with *which *it was connected by a spacious *pathway*, **paved**
33 with worn and cracked, but very clean, bricks. behind *it *there were meadows and
34 orchards, a barn and a pond; and facing *it, a short distance along the *road, on the
35 opposite side, stood a smaller ***house***, painted white, with external shutters *painted
36 green, a little **garden** on one hand and an *orchard [29-19] on the other. all this was
37 shining in the morning air, through *which the simple details of the picture
38 addressed *themselves to the eye as distinctly as the items of a "sum" in addition.

Figure 8. Output from Henry James, The Europeans, *Ch. II.*

```
 1  "*i know what *you *want to *say," *she answered. and *she was on the point
 2  [130-40] of adding, "and *i *know just how *you will *say *it;" but these words
 3  *she kept back.

 4  "*i love *you, gertrude," *he said. "*i *love *you very much; *i *love *you more
 5  than ever."

 6  *he said the *words just as *she had known *he would; *she had heard *them
 7  before. *they had no charm for *her; *she had said to *herself before that *it was
 8  very strange. *it was supposed to be delightful for a woman to listen to such
 9  *words; but these seemed to *her flat and mechanical. "*i wish *you would forget
10  that," *she declared.

11  "how can *i--why should *i?" *he asked.

12  "*i have made *you no promise--given *you no pledge," *she said, looking at
13  *him, with *her voice trembling a little.

14  "*you have let me feel that *i have an influence over *you. *you have opened your
15  mind to *me."

16  "*i never *opened *my *mind to *you, mr. brand!" gertrude cried, with some
17  vehemence.

18  "then *you were not so frank as *i thought--as we all *thought."

19  "*i don't see what any one else had to do with *it!" cried the girl.

20  "*i mean *your [131-58] father and *your sister. *you know *it makes *them
21  happy to think *you will listen to me."

22  *she gave a little laugh. "*it does n't *make *them *happy," *she said. "nothing
23  *makes *them *happy. no one is *happy here."

24  "*i *think *your cousin is very *happy--mr. young," rejoined mr. brand, in a soft,
25  almost timid tone.

26  "so much the better for *him!" and gertrude *gave *her little *laugh again.

27  the *young man looked at *her a moment. "you are very much changed," *he said.

28  "*i am glad to hear *it," *gertrude declared.

29  "*i am not. *i have known *you a long time, and *i have loved *you as *you were."

30  "*i am much obliged to *you," said *gertrude. "*i must be going home. "

31  *he on *his side, gave a little laugh.

32  "*you certainly do avoid me--*you see!"

33  "*avoid *me, then," said the girl.

34  *he looked at *her again; and then, very gently, "no *i will not *avoid *you," *he
35  replied; "but *i will leave *you, for the present, to yourself. [132-53]
```

Figure 9. Output from Henry James, The Europeans, *Ch. V.*

NOTES

1. An intermediate category, 'accessible', defined as 'concepts that the speaker . . . transferred from the semi-active to the active state in his own mind' (1987:32), is also new information in terms of a purely binary contrast.

2. Previous research has tentatively suggested that this might be an optimal setting for the upper limit of anaphoric gap as measured in successive lexical items and anaphoric lexical equivalents (Cummings 1995:451).

3. In anticipation of this point, forms 'said' and 'cried' were treated as if they were function words and excluded from the span in computation.

4. Other omissions stem from the over- and under-inclusiveness of the table for inflectional morphemes, e.g., the failure of 'dress' (Fig. 8-12) and 'known' (Fig. 9-6) to register as iterations.

REFERENCES

Britannica, The New Encyclopaedia. 1977. "Music, Western" in *The New Encyclopaedia Britannica: Macropaedia*. Vol. 12. 15th edition. Chicago: Encyclopaedia Britannica, Inc., p. 710.

Chafe, Wallace. 1987. "Cognitive Constraints on Information Flow." In Russell S.Tomlin, ed., *Coherence and Grounding in Discourse*. Amsterdam : Benjamins, pp. 21-51.

Cummings, Michael. 1995a. "Structural Semantics as the Basis for Theme/Rheme." *LACUS Forum* 21, 443-59.

— 1995b. "Measuring the Flow of Information in Texts: Focus of Information, Communicative Dynamism, and Lexical Semantics." Address delivered to the *22nd International Systemic Functional Congress*, Peking University, Beijing, People's Republic of China, July 19, 1995.

— 1996. "Computational Analysis of Old English Lexical Cohesion."*LACUS Forum 1995* 22, 293-303.

— . forthcoming. "Intuitive and Quantitative Analyses of Given/new in Texts.'" In J. DeVilliers and R. J. Stainton, eds., *Communication in Linguistics* (Toronto: GREF).

Firbas, Jan. 1992. *Functional Sentence Perspective in Written and Spoken Communication*. Cambridge: Cambridge University Press, 1992.

Gernsbacher, Morton Ann and T. Givon, eds. 1995. *Coherence in Spontaneous Text*. Amsterdam : Benjamins.

Givon, Talmy. 1983a. "Topic Continuity in Discourse: An Introduction." In Talmy Givon, ed., *Topic Continuity in Discourse: A Quantitative Cross Language Study*. Amsterdam: Benjamins, pp. 1-41.

— , ed. 1983b. *Topic Continuity in Discourse: A Quantitative Cross Language Study*. Amsterdam: Benjamins.

— 1995. "Coherence in Text vs. Coherence in Mind." In: Morton Ann Gernsbacher and T. Givon, eds. *Coherence in Spontaneous Text*. Amsterdam: Benjamins, pp. 59-115.

Halliday, M.A.K. 1967. "Notes on Transitivity and Theme in English, Part 2." *Journal of Linguistics* 3.2, 199-244.

— 1994. *An Introduction to Functional Grammar*. 2nd ed. London: Edward Arnold.

Halliday, M.A.K. and Ruqaiya Hasan. 1976. *Cohesion in English*. London: Edward Arnold.

Project Gutenberg. 1994. *The Project Gutenberg Etext of* The Europeans, *by Henry James*. [Etext #179]

STRUCTURING AND SIGNALLING TOPIC MANAGEMENT

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1. Introduction

The research reported under the above title represents the current state of work in progress within the research project *Topic Management in English and Spanish*[1]. In what has been an essentially collaborative undertaking by members of a team drawn from three universities in the Madrid area, the present taxonomy of topic management structure emerges from the empirical analysis of extracts from a corpus of naturally occurring conversations in English.

The article is organized as follows: section 1 situates the project within the current trends in Topic Management (TM) and outlines the global aims of the project; section 2 explains the material and methodology used; section 3 gives a brief explanation of the two major elements in TM; section 4 follows with a more detailed description of TM linguistic devices; section 5 deals with the units of discourse structure in TM; section 6 provides an overview of the taxonomy and concludes with a summary and an orientation to future research.

1.1 Approximations to Topic. Topic has been treated from two main perspectives, which Goutsos terms the *what* and the *how*; from the *what* perspective, topic is seen as a discrete element or unit, while from the *how* perspective it is viewed as an organizing frame (Goutsos 1997:2). By and large, these two types of approximation have been associated with sentence topic and discourse topic respectively.

Sentence topic has the longer history, and has been ascribed a variety of properties: as a structural element, in which it is a discrete sentence constituent, explicit and obligatory; as the point of departure of the message, coinciding with the first ideational element and tied to leftmost position of the clause; from a logical perspective, as 'aboutness', topic being identified with the referents or the main propositions mentioned. Topic has also been identified with presuppositions, and linked to participants' shared knowledge. As an informational category, topic (theme)

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[1] Financed by the Spanish Ministry of Education and Culture, to whom we express our gratitude (A. Downing, Principal Investigator).

has been identified with given information in information structure. Finally, topic has been related prototypically to the pragmatic properties of definiteness and focus of attention. Various treatments of topic have combined two or more of these attributes while rejecting others; for instance, for Halliday topic is a kind of theme (topical theme) which is at once a discrete and obligatory element that conflates with the first ideational element, occupies initial position in the clause of which it represents its 'point of departure', is that with which the clause is concerned but is a separate category from given information (see Goutsos op.cit. for a fuller summary.

The *how* perspective, adopted by the conversation analysts, social psychologists and others interested in the organization of discourse and its signaling, including Goutsos himself, is based on the sequentiality and linearity of discourse.

Our own approach also centers closely on the sequentiality of topic organization but also, and importantly, on the hierarchization of topics. With respect to the latter, we have at present limited our attention to two levels, which will be referred to as macro or global discourse topics and micro or local topics.

Global discourse topics (D-topics) are sequentially organized and represent a wide concern which may subsume the conceptual content of a wide stretch of discourse, while local topics are hierarchically structured under the 'umbrella' of the D-topic which unifies them (van Oosten 1985; van Dijk 1977; van Dijk and Kintsch 1983):

> ... a concept or a conceptual structure (a proposition) may become a discourse topic if it HIERARCHICALLY ORGANIZES the conceptual (propositional) structure of the sequence (van Dijk 1977:133-4)

Such a view implies a consideration of 'aboutness' in identifying such global and local topics. Ultimately, then, our work will provide an integrated approach, using both the *what* and the *how* perspectives, integrating the semantic with the pragmatic.

1.2 Aims. Our wider aim is to model the mechanics of TM in English and Spanish spoken discourse and to specify in machine-computable terms the TM strategies each language avails itself of. To this end, the successive aims of the project are threefold: 1) to set up a model for the analysis of TM devices and structures in spoken English discourse, concretely of topic introduction, closure and resumption; a later stage of the project will include topic shift, and an attempt to account for the development of topics within the global boundaries; 2) to tabulate the data gathered from the analysis in such a way as to enable easy retrieval by researchers and exportability to external applications such as wordprocessors, spreadsheets or statistical packages, and to create suitable tools for this purpose; 3) to construct a similar model for Spanish once the present model has been tested for viability on the English data. This more complete framework will make possible the description of the main differences in TM strategies between the two languages, and the linguistic devices most frequently used in the implementation of such strategies. Such a specification would serve as valuable input to such activities as the automatic searching for key concepts, in addition to its obvious utility in the teaching of both languages, particularly to non-native learners, in such aspects as the comprehension and production of natural discourse. To this end a data-driven learning system has been devised that operates on textual samples, and is in the process of being tested.

2. Materials and Method.

Three surveys (face-to-face conversations) from *The London-Lund Corpus of Spoken English* (cf. Svartvik & Quirk, 1980) were submitted to an exhaustive empirical analysis to determine those linguistic devices and units of structure which appear to be relevant to topic introduction and topic closure. The three texts are described below in terms of the characteristics of their speakers:

S.1.1: 2 speakers: 2 male academics, age c. 44 (A) and 60 (B).
S.1.3: 3 speakers: 3 female undergraduates, ages c. 36 (A), 30 (b)
and 36 (c).
S.1.5: 4 speakers: 3 female secretaries, ages c. 21 (A), 35 (C) and 21 (D);
1 female academic, age c.25 (B).

With respect to the texts selected, the conversations were surreptitiously recorded with the exception of two speakers in S.1.3, b and c (lower-case letters corresponding to non-surreptitious speakers), whose role, however, is almost exclusively that of encouraging others to speak. The three selected texts amount to approximately 15,000 words, over 5,000 in each text.

Macro Discourse topics or topic sets were identified both in terms of the continuity of thematic content and of being, ideally, separated by means of clear conversational boundaries. Micro DTs were identified by their being subsumed thematically under a macro-discourse topic. Such a procedure facilitated the elimination of insertion sequences from the main topic flow. The linguistic devices and the relevant units of structure which emerged from the analysis are detailed in the following sections.

3. The Two Major Dimensions in TM

A scrutiny of the data leads us to visualize TM in English conversation as lying on two interacting and overlapping dimensions: the signaling and the structuring. They are organized as follows:

1) *The signaling dimension* is implemented by the linguistic devices crucial to TM in English conversation. These comprise the following: Signals; Topic Formulating Devices: Formulations and Formulators. The function of these devices

is to establish macro and micro topic boundaries and to signpost important topic content.

2) *The structuring dimension* is implemented by the units of discourse structure pertinent to TM in English conversation, identified as Move sequences, Moves and Acts. The function of these units is to drive the topic forward, structuring the participants' contributions in the joint creation of topicality. The category of Move (Sinclair & Coulthard 1975; Francis & Hunston 1992; Tsui 1994) is adopted in order to deal with the issues of development and change in the direction of discourse topic. However, Moves in the above models of conversation analysis are set up to account for any change in the direction of a conversation, whether directly relevant to discourse topic or not. In our model, we consider only those Moves which have a direct incidence on topic development. Here we limit our analysis to those Moves which effect the opening or closing of macro discourse topics. The two dimensions are further outlined in the following sections.

4. TM Linguistic Devices

A concern with the boundaries that set off one macro-topic from another and in the ways they are marked is consonant with an emphasis on sequentiality. In this respect we would agree with Goutsos (1997:35) that "topic is not defined and identified as an a priori unit but is seen as the outcome of the marking of boundaries by the text producer and the decoding of boundaries by the text receiver." Nevertheless, we would emphasize that in conversation, unlike the expository texts which constitute Goutsos's database, the marking of boundaries is quite frequently unclear. Participants in a conversation must rely to a certain extent on the extraction of 'gist', and analysts must somehow account for this in their online segmenting of discourse. This aspect is, however, not dealt with in the present paper.

4.1. Topic Signals: Markers. Within our TM model, signals are devices whose main function is to help mark a boundary within the topic flow, without any explicit reference to or inclusion of the topic. Signals include Markers, Addressers (i.e. vocatives) and Formulaic expressions such as *Bless you!* and *Thank you very much*. The present study centres on the first type, Markers, which include words, phrases and expressions largely devoid of referential content, such as *yes* and its variant *yeah, I see, you see, well, you know, now* and *ehm*. Variously labelled in the literature as discourse markers, fillers, hedges or continuatives, markers do not generally by themselves indicate a definite direction that TM is taking; rather, they signal and accompany the Moves or Acts which more overtly carry the topic forward.

4.1.1. Functions of Markers. Markers, together with other signals, fulfil diverse functions, the nature of which depends crucially on their position within the tone unit and turn, and on the kind of move sequence they belong to. Their two major functions identified so far are those of signalling topic introduction and topic closure.

When signalling topic introduction, markers tend to coincide with a change of turn and to appear in initial position of a tone unit or a clause:

(1) [ə:m]. now what was the other thing that I wanted to ask you. is
is it this year that [ə:] Nightingale goes (1-1, 236-239)[2]

Signaling of closure exhibits considerable variation. The rounding off of macro topics may be accomplished by a clustering of markers, including repetitions as in (2):

(2) B. I must watch the time Reynard
A. * quite [m]*
B * or I may miss the bank*
A. * yes yes yes you must* (1-1, 1194-1208)

Conversely, the macro topic may not be terminated at all, but may drift to another topic signaled by lesser degrees of marking. This difference between openings and closures may have to do with the fact that while opening a topic is obligatory, closing it is less so (cf Goutsos op.cit.).

4.1.2. Distribution of Markers. Evidence suggests that different variants of certain expressions appear to be used by speakers in marking different levels of discourse. Thus, different variants of [ə:m] have been found in the data, namely [əm] and [ə], together with various forms of [m], basically [mhm] and [hm]. Topicwise, it appears that [ə:m] and [əm] clearly mark an opening move at macro level, or a transitional move representing an aspect or perspective of a macro topic. By contrast, [m] has less relevance for topic transitions at a global level. Its function is more local, even though it does occur at topic introduction, in addition to its use in other contexts as a temporizer or delaying tactic.

The clusterings of markers at the boundaries that set off one DT from another. occur both at opening and closing move sequences, preponderantly in closures. Table 1 illustrates the range of markers in Openings and Closures.

4.1.3. Frequency of Markers. Some interesting preliminary results have emerged for the frequency of markers in opening and closing sequences in the texts analyzed. These frequencies are represented in Table 2 and Table 3 respectively. The most frequently used marker in opening sequences is [ə:m] and its variants, followed by

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[2] Prosodic symbols used in the examples (adapted from the richer transcription of the LL Corpus) include the following: *quite* = overlapping speech; . = very brief pause, - - = longer pause.

well.

Table 1: Markers functioning in Topic Openings and Closures

Openings		Closures	
Single markers	Clusters	Single markers	Clusters
ə:m, əm, [ə:m] [ə] well m now	well ə:m well now ə:m.. ə:m ə:m now I mean you know əm you know I mean well now you see	yes yeah you see I see well m̋	yes yes yes yes m m m yeah I see I see yes yes exactly yes of course quite m ə:m well yes oh yes yes quite yes yes yes I see yes yes yeah well ə: hm quite so m m m yes quite

Table 2: Frequency of Markers functioning in Topic Introduction

	[ə:m],[əm] [ə:], [ə]	well	[m],[hm], [mhm]	now	you know	I mean
S.1.1.	15 44.12	5 31.25	1 20	2 50		
S.1.3.	17 50	6 37.5	3 60		2	2
S.1.5.	2 5.88	5 31.25	1 20	2 50		
Total	34 100%	16 100%	5 100%	4 100%	2 100%	2 100%

In text 1-5 there is a notable lack of signals in opening sequences. The topic is frequently introduced solely by an eliciting (interrogative) Act. Such an introduction may be regarded as too abrupt in other conversational contexts where participants appear to be of unequal professional rank (as in 1-1). In this respect, our data suggest that there is a wide range of factors which may condition the use of these markers in discourse topic organization: textual formality, power relations and the professional rank of speakers, the delicate or private nature of the issue being discussed and, ultimately, individual linguistic habits of the speakers, as part of their idiolect.

In Topic Closures the most frequently used marker is *yes* (or its variant *yeah*), followed by [m] or [hm]. There is a notable difference in frequency among the texts, 1-1 exhibiting the highest frequency of use of markers. In this text the two speakers are university academics, one of whom appears to have a hidden agenda and perhaps a higher professional rank. These features may explain the difficulty this speaker appears to have in closing off topics and in approaching the real issue, that of getting his colleague to assess academic papers during the summer recess. It is worth mentioning in this respect that the macro Topic of a considerable stretch of the 1-1 text is perceived by both the addressee and the analyst as a macro speech act of request, never explicitly put into words as such.

Table 3: Frequency of Markers functioning in Topic Closure

	yes,yeah	[m][hm]	I see	well	quite	you see	[ə:m],[ə:]
S.1.1.	28 73.68	6 54.55	3 75	2 66.67	3 100	2 100	2 100
S.1.3.	3 7.89	5 45.45					
S.1.5.	7 18.42		1 25	1 33.33			
Total	38 100%	11 100%	4 100%	3 100%	3 100%	2 100%	2 100%

4.2. Topic Formulating Devices: Formulations and Formulators. Unlike signals, TFDs have an explicit reference to the topic. The two categories identified here are Formulations and Formulators.

4.2.1. Formulations. Heritage & Watson (1979:149) have defined the notion of formulation as a gloss on talk, concretely:

> ...a gloss on "what we are talking about (or have talked about) thus far" ... The making of formulations, then, is a built-in part of rendering conversations preservable and reportable, and it is in this sense that formulations may be said to »fix» what will have turned out to be a (the)topic."

Formulations are utterances expressing macropropositions which explicitly capture the DT. They are the most explicit Topic Formulating device and thus have an essential role in managing topic in conversation. They are typically retrospective, as in (3), in which a speaker was telling a story when a new participant enters:

(3) A - - I'm just explaining how I acquired a sewing-machine by foul means . by writing an instruction booklet for one and saying I must have this if I'm going to write the booklet (1-3,169-174)

4.2.2. Topic Formulators. Formulators are devices for opening, closing or changing topic, by explicitly signalling to the interlocutor that a new direction with

respect to topic is proposed. They tend to be prospective. We may identify three structural subtypes:
a. F1: This type consists of Formulating Phrase + Topic Element. The utterance contains a phrase conventionally indicating the speaker's goal with regard to topic, plus an element which makes reference to the conceptual content of the topic of discourse.

(4) A may I ask what goes into that paper now (1-1, 9-10)

(5) B let me tell you a story (1-1, 446)

b. F2: This consists of Topical Element only, typically a nomination of topic:

(6) C I must have an immigrant's visa (1.5, 1209)

(7) b - - how did you get on at your interview (1-3, 215)

c. F3: This type consists of Formulating Phrase only and does not include any word or element bearing any semantic reference to the Topic itself. It typically involves some kind of metadiscoursal comment, signaling that some change is taking or is going to take place: opening or closing a topic, or transition to another topic.

(8) A one other thing Sam (1-1, 64)

(9) B yes of course but that's the tale (1.5, 249-251)

Very often we find a cumulative effect, by the use of a series of discourse markers plus the formulator in the same tone unit, or in a sequence of tone units.

(10) A [ə:m] you're very kind old Sam -- bless you well that finishes that (1.1, 234-36)

5. Units of Discourse Structure in Topic Management

The units of discourse which structure TM in conversation are the following: Move sequences, Moves and Acts. A hierarchical relationship holds between these classes of unit in that Move sequences are made up of Moves, and Moves can be seen as comprising a main Act together with further supporting and optional Acts.

5.1. Topic Move Sequences. A topic Move sequence comprises all the stretch of discourse which has a macro function in terms of TM. This study considers only Opening and Closing Moves and Insertion sequences. The key Moves are defined as follows:

1. *Opening Move sequences* open up a new topic.
2. *Closing Move sequences* put an end to a topic.

It is also necessary to account for *Insertion sequences*, even though they do not drive the topic forward; rather, they momentarily interrupt the topic flow. They are subdivided into two types:

(i) asides, which consist of comments on immediately previous or prospective information: *this is just between ourselves;*

(ii) action insertion sequences, in which the speaker acts or directs the addressee or hearer to act: *wait a minute; do you mind if I smoke?*

Despite the fact that they do not contribute directly to TM, they are, nevertheless, important for our analysis for two reasons: a) they must not be considered local topics, since they are set off from the main topic both by semantic content and, frequently, by boundary signals. They do not, therefore, belong within the hierarchical semantic structure set up by a macro topic. As a consequence of this separation, b) insertion sequences may trigger a reinitiation of an Opening Move which starts up a new macro topic, as in example (11):

(11)	initiation	A ə:m Delaney a Canadian who graduated
	insertion sequence	B where did you put those things just one let me put this in my bag or I'll walk away without it
	reinitiation	A ə:m - - Delaney's the Canadian student remember (1-1, 65-71)

Topic Move sequences are composed of Moves which occur in a certain order. Typical full sequences consist of the following Moves:

(i) In Opening Move sequences: Initiation, Response, Consolidation.

(ii) In Closing Move sequences: Initiating closure, Response, Closure.

As the previous example illustrates, certain Moves within the sequence may reoccur; that is, there is possible recursion within the sequence. Likewise, full completion of the sequence is not guaranteed; a speaker may fail to respond, or the response may trigger an abrupt topic switch rather than contribute to the acknowledgment and consolidation of the proposed macro topic. The initiating or closing Move sequence would then be aborted.

5.2. Topic Moves in Opening Move Sequences.

5.2.1 Initiation. These moves belong to one of two types: *informative* and *eliciting*, and tend to contain topic formulating devices.

Informative initiations are those that provide information, such as:

(12) F3 A but this is something I want
F2 one day I want a room where a sewing machine stands up permanently (1.3, 204-207)

Eliciting initiations are those which ask questions:

(13) F2 b - - how did you get on at your interview (1.3, 215)

Initiations may be followed by a re-initiation, as in (11) above, or by another related Move, as in (14):

(14) initiation F2 A do you sew a lot
comment I used to sew a lot when...(1.3, 67-69)

5.2.2 Response. Responses to initiations tend to be brief, and are frequently realized by signals, such as [*m*], *yes, no, quite*..., as in (15)

(15) reinitiation A Delaney's the Canadian student, remember
response B mh/m (1-1, 71-73)

5.2.3 Consolidation. Following a Response, a Consolidating Move establishes a Topic proposed in the Initiating Move. The consolidation, which does not usually contain a Formulation, is observed to be uttered by the initiator if the initiation is informative, and by the responder if the initiation is eliciting.

5.3. Topic Moves in Closing Move Sequences. Closing Move sequences are more varied than Opening Move sequences in two respects: i) the number of Moves involved, and ii) the location of Topic Formulating Devices. Thus, firstly, Closures may be realized by one single Closure move, instead of the three-part structure observed in many Openings. Secondly, Closing Move sequences are heterogeneous with respect to the places at which TFDs occur within the structure, in contrast to the invariable placement of such devices in the Initiating Move of an Opening sequence.

5.4. Acts. These are the smallest elements in the units of discourse; their purpose is to realize the Moves. For example, a Topic Initiating Move in an Opening sequence may be carried out by a question, or by a statement. The analysis of Acts can also indicate that a topic is supported, leading to agreement and closure, or, on the contrary, that the topic has been challenged, thereby necessitating further negotiation. Thus, the study of Acts can help reveal the connection between global and local topic levels.

6. Conclusions

The present taxonomy shows how the initiation and closure of macro topics are carried out in face-to-face conversation in English. Two interacting dimensions are involved: signaling and structuring. That of signaling is represented by signals and topic formulating devices (TFDs), that of discourse structuring, by categories identified as Move sequences, Moves and Acts.

An initial analysis of Opening and Closing topic sequences across a sample of texts reveals certain differences in these two key areas of TM. Opening sequences show greater uniformity both in the fulfilment of the potential three-part Move sequence, and in the signaling of the topic opening. Closures are more heterogeneous, ranging from recursive Moves accompanied by clusters of signals to one Move plus or minus a signal. This greater variety of closing sequences may have to do with the obligatory nature of topic introduction. Closure, by contrast, is optional in that speakers may introduce a new topic without necessarily winding up the current topic.

The distribution of markers was also found to differ between macro topic openings and closings, both as regards individual markers and in clusters, as well as between texts, with interpersonal factors influencing in the latter. Furthermore, markers together with TFDs frequently make for a cumulative effect in signaling strategies in TM.

On the structuring dimension, a revision of the relevance of the category Act to TM is contemplated, before undertaking work on the Spanish corpus.

Table 4 illustrates an analysis of TM strategies including both discourse units and linguistic devices.

Table 4: Analysis of an Opening Move Sequence. (1-1, A237-B240)

Move Sequence	Move	Linguistic Device	Act	Expression
Opening		marker A237		[ə:m] now
		F3 A238		what was the other thing I wanted to ask you
	Initiating A239		Elicitation	is it this year that Nightingale goes
		marker B240		[ə:]
	Response		Inform.	no, next year

REFERENCES

van Dijk, T. 1977. *Text and Context*. London: Longman.

van Dijk, T & Kintsch, W. 1983. *Strategies of Discourse Comprehension*. New York: Academic Press.

Francis, G. & Hunston, S. 1992. Analyzing everyday conversation. In M. Coulthard, (ed.) *Advances in Spoken Discourse Analysis*. London: Routledge. 123-161.

Goutsos, D. 1997. *Modelling Discourse Topic. Sequential Relations and Strategies in Expository Text.* Norwood, N.J.: Ablex.

Heritage, J.C. & Watson, D.R. 1979. Formulations as conversational objects. In G. Psathas (ed.) *Everyday Language. Studies in Ethnomethodology*. N.Y. and London: Irvington Publishers. 123-162.

van Oosten, J. 1985. *The Nature of Subjects, Topics and Agents. A Cognitive Explanation.* Bloomington, Indiana: Indiana Linguistics Club.

Sinclair, J. McH & J. & Coulthard, R.M. 1975. *Towards An Analysis of Discourse*. Oxford: Oxford University Press.

Svartvik, J. & R. Quirk. 1980. *A Corpus of English Conversation*. Lund: Gleerup.

Tsui, A. 1994. *English Conversation*. Oxford: Oxford University Press.

EXPOSITORY DISCOURSE SCHEMA FOR SCHOLARLY ELECTRONIC MESSAGES

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Electronic messages[1] have become a daily reality to many researchers of today. They are commonly referred to as traveling the information super-highway, perhaps both for their speed and quantity of information. People check their e-mail just as they would their mail box daily. Each medium has its own physical constraints, e.g., the computer versus the postal service with different temporal and spatial constraints. Electronic messages may also be better than telephone or fax, especially when the receiver is traveling. "E-mail documents are right in front of the receiver where they can be studied point by point," and "pieces can be extracted for inclusion in a response" (Newton 1995).

This paper compares expository discourse and computer-mediated communication type of discourse. It studies discourse features of the scholarly quasi-public electronic messages that appear on the LINGUIST and the FUNKNET discussion lists. Assuming that individual electronic messages are texts on their own, the paper presents a discourse analysis, categorizing them in a system of discourse typology with four basic types of narrative, procedural, hortatory, and expository (Longacre 1996). The messages on both discussion lists are primarily discussions on specific issues. They have linguistic features most similar to expository discourse and display the expository discourse schema[2] which, according to Longacre (1992), consists of four functional slots or moves: problem, solution, supporting argumentation, and evaluation of the solution.[3] He (1996:34) says: "Often expository discourse considers in turn several solutions to the same problem and discards solutions which do not appear to stand up under evaluation." In addition to the body

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[1] I would like to express my gratitude to Susan Herring, Marlin Leaders, and Bob Longacre for their helpful comments on this paper.

[2] van Dijk (1980) uses the terms schema and superstructure interchangeably to refer to "the schematic form that organizes the global meaning of a text ... consist[ingl of functional categories" (108-9). The functional categories of a schema are also referred to as functional slots, moves (Longacre 1992), or macrosegments (Herring 1996a).

[3] Hoey (1991) uses the labels problem and solution as functional slots of a general schema for all types of texts.

of message, electronic messages may have epistolary conventions at the beginning and end: salutation, complimentary close, signature, and postscript. These peripheral slots add the interactional dimension that is similar to letters.

Sections 1-2 discuss features of expository discourse and electronic messages respectively. In Section 3 selected messages are analyzed showing the typical macrosegments at the discourse schema level as well as the microsegments at the paragraph level.

1. Expository Discourse

Expository discourse is characterized in Longacre's (1996) discourse typology as having minus values in two basic parameters: agent orientation and contingent temporal succession, i.e., there are no running references to specific agents and no contingent events that are on a time line. To put it positively, it has topic orientation and logical succession. An expository text deals with topics or themes that are causally and logically connected. Thus it contrasts most sharply with narrative discourse, which has positive values in both of the basic parameters.[4] Expository discourse can range from the familiar essay to the scientific article. Systems of expository discourse may show distinct features peculiar to particular languages, such as special pronoun usage, sentence length, and tense, aspect, and modality. In Aguaruna spoken in Peru, for example, clause chaining in long sentences common in narrative is replaced by coordination in expository and descriptive discourse so that sentences are short consisting of one clause or two to three coordinated clauses (Larson 1984).

Our first illustrative text[5] comes from Jones (1977:228) in her study of English expository discourse:

(1) ***I*** Natural science does not in itself provide a cosmology. It has congruence or consonance with modern Western cosmologies; it has not to the same degree consonance with others. ***II*** If, for instance, you are an Eastern mystic for whom the body is a complete illusion, you will no doubt have to feed that illusion with a minimum of food and drink but you will not make yourself an expert on human physiology. You cannot, however, get from science an answer to the question, "Is the human body an illusion?", not even to the question, "Is it better, as most of us do in the West, to consider the human body a real thing or is it better to consider it an illusion'?". ***III*** In brief, the pursuit of scientific knowledge may well be a part of our Western

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[4] Contrastive linguistic features between narrative and expository are pointed out by Graesser and Goodman (1985), Kieras (1985), Martin and Peters (1985), Myer (1985), and Voss and Bisanz (1985).

[5] Insertions in parentheses in II are not included.

values; it cannot possibly make our Western values.

This text has a clear three-part organization of introduction, body, and closure. The body argues with an example for the solution (the thesis) presented in the introduction. The problem, unstated but presupposed as background, might be a misconception some people have about natural science. The thesis is stated again in paraphrase in closure.

Another expository text analyzed by Martin and Peters (1985:67-68) is presented here in an abbreviated form:[6]

(2) ***I*** Today in Australia there are many problems in the area of racial differences. Many of these have to be overcome. The main problem is that all races are different socially, culturally and linguistically as well as physically.

II The first problem to be solved is that Australia is the most cosmopolitan country in the world today. Many people have brought their way of life with them from overseas. With this there is a major problem of language--a communication gap. (*9 more sentences*)

III These problems can be solved by teaching. Language courses should be taught but not pure English;... (*3 sentences*)

IV One problem that is unsolvable is the physical differences among the different races. (*2 sentences*) Skin colour just cannot be changed to suit the environment.

The authors analyzed the schematic structure of this text – written by a student – into four parts: introduction, solvable problems, solutions to solvable problems, and unsolvable problems. Introduction presents problems in general, while II and IV discuss specific ones in two categories, solvable and unsolvable. Solutions in III have persuasive elements, e.g., with a deontic modal (*should*). Parts II and III may be grouped together as the body dealing with solvable problems and their solutions.

In both texts we note linguistic features typical of expository. The texts are oriented to continuing themes (*natural science and cosmology; (racial) problems*) rather than to specific participants. The verbs are mostly in timeless simple present tense, with medals like *will, can/cannot, should*. The nouns are more abstract with facts stated in nominalization (e.g., *the pursuit of scientific knowledge*). Impersonal or general pronouns are used (*it, you, our/us*), and deictics (*this, these*) refer to abstract themes and topics. The linkage is through topics and parallelism of content, e.g., note the theme-subjects beginning main parts in text (2): *The first problem to be solved, These problems, One problem that is unsolvable.*

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[6] Their use of the term expository is more inclusive, with two basic subtypes, analytical and hortatory (moral). The analytical includes explanatory types (what vs. how/why types) and persuasive (interpretive, evaluative, and argumentative).

2. Electronic Messages

The LINGUIST and FUNKNET lists include academic and scholarly quasi-public postings (which are not addressed to an individual) by members from all over the world. Both include the automatic header with the e-mail sender's address, date/time of posting. Senders' names may not be known when there is no signature, unless they are given at the end of the e-mail address (since some names appear as part of an e-mail address).

The LINGUIST list, with a larger number of participants (now over eight thousand), deals with a broad range of topics, whereas the FUNKNET list has more restricted topics concerning primarily a functional – including typolopical and cognitive – approach to language. More significantly, the former is a moderated list, in which all submitted messages are scanned and grouped into categories of jobs, calls, discussions, tables of contents, etc. The latter is not moderated, so that all messages are automatically posted to all members and the postings occur in spurts, none for days and weeks or several a day depending on whether there is a topic under discussion and depending on the topic. In LINGUIST, the headings occur at least twice (in the directory arranged by number, title, etc., and with messages), while in FUNKNET only the normal e-mail heading is shown.

Electronic messages are similar to letters, and they tend to be shown graphically like a letter. Mann, Matthiessen, and Thompson (1992:53) posit the following units as the holistic structure of letters: preliminary (letterhead, date, salutation), body, closing (complimentary close, signature, printed name, printed title), and P.S. (optional). The epistolary conventions at the beginning and end of e-mail discussions – salutation, complimentary close, signature, and P.S. – add the interactional dimension that are similar to letters. However, salutation and complimentary close are far less common in e-mail, and some messages completely lack these epistolary units. This may be due to several factors: (1) People are less constrained from conventions in general, as shown by unconventional spellings, e.g., small letter for *I*, cut spelling like *languaj, botm*. (2) E-mail headings have some information on the author in the address. (3) We are at a loss as to how we should address a group of people, a lot of whom we don't know personally.[7] Salutations like *Dear LINGUIST list netters, Dear netters, Dear Funknetters, Hi* may sound too impersonal or presumptuous, and a personal name inappropriate when we know others on the list also read them. (4) Complimentary close for the whole group of subscribers is rather awkward as well, although the final signature is commonly found, perhaps to claim responsibility for the message. When there is a salutation, it tends to be addressed to all subscribers in the LINGUIST (*Dear Netters, Dear Subscribers*), while it is more commonly addressed to individuals in the FUNKNET – as if the other subscribers are overhearing.

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[7] Compared to public postings, personal respondents to my query that was posted on LINGUIST had a higher percentage of salutation (45% as opposed to 13% in fifteen public discussiors on sex/language on LINGUIST). Complimentary close showed even more discrepancy (73% vs. 6%).

Again similar to the letter, electronic messages have features of both oral and written languages (Du Barteli 1995, Yates 1996). Herring (1996a), noting the fact that they combine features of both interaction and exposition, but reflecting their interactional nature more heavily, posits a three-part schema as the basic electronic message schema: link to an earlier message, expression of views, and appeal to other participants.[8] Note that her schema corresponds to the conventional three-part structure of introduction, body, and closure, which is true of all types of discourse.

The letter is "a surface structure form which may partake of the characteristics of any of the four main types" (Longacre 1996: 11), and so may an electronic message. The holistic structure of a letter or e-mail provides the surface form, but not the notional type. Thus if we are to use the term schema for the notional discourse type (cf "a schema is discourse-type specific" (Longacre 1992:110), the holistic surface structure may not be called the schema since the body of a letter or message is yet to be classified into narrative, procedural, expository, or hortatory (e.g., the fund-raising letter used in Mann and Thompson 1992).

The electronic messages that appear on LINGUIST and FUNKNET lists have to a different degree similar epistolary peripheral slots and the three-part structures discussed above. But the message proper, i.e., "expression of views" in Herring's study, is most likely to have the expository schema, although "problem" may appear in the introductory part which is "link to previous message."

Expository discourse schema (Longacre 1992)		Electronic message structure (Herring 1996a)
Problem	==>	Link to previous message
Solution	\\	
Supporting argumentation	==>	Expression of views
Evaluation of the solution	//	
Ø	==>	Appeal to other participants

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[8] Her use of the term appeal is for an appeal to continue or end the discussion, which is external to the body of the message. It is different from Longacre's use of the term for an appeal to give credence or to adopt certain values nuclear to persuasive discourse. In her (1996a:86) counts, while both link to an earlier message and expression of views are included in 67% of her sample tests, appeal to other participants only occurs in 21% (with apology as the next most frequent in 21%). This low percentage weakens the arguments for the appeal as the third slot of "the basic electronic message schema."

Herring (1996a:90) notes that the body (expression of views) sometimes contains embedded exposition and persuasion. However, rather than being embedded in another type of discourse, the body itself is the one which is diagnostic of notional discourse type and thus helps us to categorize the whole message into a distinct type.

3. Macrosegmentation and Microsegmentation of Sample Texts

I have chosen three sample electronic messages, discussing the value of debate and the parser challenge in FUNKNET and sex/language in LINGUIST.[9] The first sample text, posted in April 1997, is about the value of FUNKNET debate. The message starts with a link to previous message, which is made by the built-in direct quoting method available in e-mail.[10] It includes the author's name of the previous message and the problem. Solution or counter-argument occurs in the next paragraph, followed by supporting argumentation in two successive paragraphs, illustrating his own case. The text appears in (3) with my own labels for discourse-level slots:

(3) *Problem: FLN:*

>. .. I think that the fact that this 'debate' has evidently not had any effect upon
>anyone else leads me to suspect that the formal vs. non-formal 'debate' on
>funknet... has had more or less the same meaning as the 2-minute hate in
>Orvell's 1984, where 'Goldstein'...

Solution: I wouldn't say that the debate hasn't affected anyone. Just because people don't ditch their position and go over to the other side doesn't mean that the debate has had no effect.

Argumentation: I, for one, found it, and continue to find it, very instructive. I feel that I have a much greater understanding of the autonomy/nonautonomy issue than I had before. Moreover, the juxtaposition of different viewpoints in brief, readable, connected messages has been much more helpful for me than, say, reading a book by one author and then reading a book from an opposing viewpoint, neither author having talked to the other.

I haven't changed my original position at all, but I understand the basis for it and all the ways it could be challenged much better than ever before. If nothing else, this debate has taught me that I have a lot more reading to do.

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[9] Instead of real names, the abbreviation FLN is used for first and last names.

[10] cf. Gruber's papers for different functions of direct and indirect quoting.

Another sample text comes from FUNKNET in January 1997; it is one of over a hundred messages concerning parsing, autonomy of syntax, and functionalism.

(4) *1 FLN writes*:

>In my view this is what crucially separates functionalists on the one hand
>from cognitivists on the other or if you prefer discourse functionalists
>from cognitive functionalists: discourse folks believe that language
>removed from its communicative setting is sufficiently different from
>"real" communicative language that there's not much point in studying it,
>because you don't know what you've learned about real language when
you're
>finished. If you take this point seriously ...
>In other words it's not "autonomy" that's the main problem, it's the
>"competence-performance" dichotomy.

2 i think you're confusing what one takes to be the data and what one's ultimate theory looks like. ***3*** there are those (incl me) that base their analyses on naturally-occurring data but that may wind up concluding that syntax is autonomous from meaning. ***4*** in fact, i'd add that, if the choice of type of data locks one in to a particular conclusion, the actual research would seem pretty pointless ...

The author poses the problem of confusion after the direct quote based on the author's observation of link. Solution to the confusion problem occurs in S3-4 with argumentation, in which S4 is indicated to be an additional argument (*in fact, i'd add that*). The macrosegmentation is thus simply: problem (S1-2) and solution with arguments (S3-4). For a microsegmentation analysis, we analyze a text in its intersentential or paragraph structure (Longacre 1996, chap. 4; see also other approaches in Mann and Thompson 1992). In this text, we analyze S1-2 as forming an induction paragraph (¶) with observation and thesis respectively in each segment. The additive nature between S3-4 is shown by a coordinate paragraph with two theses.

(5) Problem: Induction ¶

Observation:	S1 (Link to previous message by direct quoting)
Thesis:	S2 (problem of confusion)

Solution with Arguments: Coordinate ¶

Thesis 1:	S3 (data and theory are not the same for me and others)
Thesis 2:	S4 (type of data shouldn't lead to fixed conclusion)

The text in (6) is one of the fifteen messages on LINGUIST discussing sex/language in August 1995.

(6) ***1*** FLN seems to be asking which comes first, sexist language or sexist behavior. ***2*** But there is surely a third alternative, that language and behavior evolve together, reinforcing each other. ***3*** It is also important to distinguish the question of how some form of language or behavior arose in the first place from that of how it is transmitted to successive generations. ***4*** I would have little doubt that sexist language plays a major role in transmitting ideas which lead to sexist behavior, but it is difficult for me to believe that HISTORICALLY sexist language came before sexist behavior.

Sentence 1 presents a problem posed by someone in a previous message, so it is a link as well as the beginning of the problem. The information in S2-3 further expands the problem, but it is in fact the argumentation that leads to solution in S4. Thus the first three sentences have more than one function at the schema level:

(7) Link: S1
Problem: S1-3
Argumentation: S2-3
Solution: S4

At the paragraph level, S1-2 are closely tied together as thesis (the problem of A or B) and counter thesis (but a third alternative C) in a frustration (or counter-expectation) paragraph. They address the first concern of evolution. Further problem and argumentation in S3 have to do with a new concern regarding evolution vs. transmission, signaled by an additive form also. Thus the two concerns are analyzed as two theses in a coordinate paragraph. The solution in S4 addresses both concerns.

(8) Problem with Arguments: Coordinate ¶
Thesis 1: Frustration (Counter-expectation) ¶
Thesis: S1 (A or B)
Counter Thesis: S2 (*But* C)
Thesis 2: S3 (*also*; arose/evolved vs. transmitted)
Solution: S4 (re. transmit, *but* re. evolve)

Thus, if our analysis is plausible and correct, the units at two levels may be non-isomorphic, as shown above, e.g., S2 is part of the argumentation along with S3 at the discourse level, but it is more closely tied to S1 than to S3 at the paragraph level. Comparing our analyses of the three short messages, we note that arguments may form a separate unit of their own as in (3), or may combine with a solution as in (5) or with a problem as in (8). This different pattern of combination suggests that the position of argumentation in the schema is not fixed but may be before or after solution. Certainly, it is conceivable that arguments may inductively lead to a solution or may deductively support the solution already given.

Of the four functional slots that Longacre posits for expository, however, none of our short texts include evaluation. Evaluating their own solution as possibly the best is only implied rather than being explicit. Longacre, however, posits the persuasive discourse schema as distinct from the expository schema based on this last slot. Instead of evaluation, persuasive discourse, which aims at influencing beliefs, includes "appeal (often very subtle) to give credence, or to adopt certain values" (1992:111). He points out that appeal is minimal and basic to persuasive. If a text, however, does not include an explicit evaluation or appeal slot, the schematic structure will not help us to classify a text as expository or persuasive. It seems to me that, in an expository text, problem and evaluation may not be overt, but solution with argumentation or explanation is minimal and basic. I further think that most scholarly essays have an implicit appeal to the writer's scientific beliefs and values arguing for the thesis expounded. Expository discourse in its pure sense without an implicit or subtle appeal may be difficult to find. Conversely, instead of lacking the fourth slot, a text may have both evaluation and appeal. I thus propose that expository and persuasive discourses be grouped together under the expository type. Whether there is an appeal may be just a matter of degree of explicitness, rather than being a contrastive feature diagnostic of discourse type.

In addition to schematic features, our sample texts display other linguistic features of expository discourse. There is a predominant use of present tense, although other tense-aspect forms are used as well, e.g., the frequent use of present perfect in (3) arguing from the author's personal experience. Thematic orientation is shown by lexical linkage in each of the three messages, e.g., running references to *debate* and *it*, *language* and *data*, and *(sexist) language and behavior*. Although we need further studies with a larger data corpus, we note logical organization of intersentential relations in the microsegmentation analysis of the two shorter texts as in (5) and (8): e.g., induction paragraph and antithetical structures with the conjunction *but* to signal frustration and counter-argument. It is also interesting to note the use of negatives in the solution slot of text (3); the answer or solution, with five occurrences of negative forms in two sentences, focuses on countering the problem posed by the previous author.

6. *Conclusion*

This paper has argued that many scholarly electronic messages on the LINGUIST and FUNKNET discussion lists resemble expository discourse in schema and other linguistic features. Some messages might resemble the persuasive type, but expository and persuasive discourses are similar enough to be grouped into one type. The messages on discussion lists are less likely to become a hortatory, which would have a command.[11] In many electronic messages, however, especially the shorter ones, macrosegments are not clearly separated into discrete units. Argumentation may combine with solution or problem, and evaluation may be absent altogether. In any case, solution with argumentation or explanation is essential to many scholarly electronic messages and to all expository texts.

The functional slots of the expository schema are cognitive categories on an expository template. They are probably less conventionalized than those on a narrative template, such as stage, inciting incident, climax, and denouement. Being cognitive and rooted in human minds, these discourse-level slots are expected to occur in a text.

REFERENCES

Britton, Bruce K., and John B. Black (eds.) 1985. *Understanding Expository Text: A Theoretical and Practical Handbook for Analyzing Explanatory Text.* Hillsdale, NJ: Erlbaum.

van Dijk, Teun A. 1980. *Macrostructures: An Interdisciplinary Study of Global Structures in Discourse, Interaction, and Cognition.* Hillsdale, NJ: Erlbaum.

Du Bartell, Deborah. 1995. "Discourse Features of Computer-Mediated Communication: 'Spoken-Like' and 'Written-Like'. In: *Organization in Discourse: Proceedings from the Turku Conference*, ed. by B. Warvik, S-K. Tanskanen, and R. Hiltunen, 231-39. Turku, Finland: University ofTurku.

Graesser, Arthur C., and Sharon M. Goodman. 1985. "Implicit Knowledge, Question Answering, and the Representation of Expository Text." In: Britton and Black, 109-73.

Gruber, Helmut. In press. "E-mail Discussion Lists: a New Genre of Scholarly Communication?" Wiener Linguistische Gazette.

— Forthcoming. "Computer-mediated Communication and Scholarly Discourse: Forms Oftopic-initiation and Thematic Development."

Herring, Susan C. 1996a. "Two Variants of an Electronic Message Schema." In: Herring, 81-106.

Herring, Susan C. (ed.) 1996b. *Computer-mediated Communication: Linguistic, Social and Cross-cultural Perspectives.* Amsterdam: Benjamins.

Hoey, Michael. 1994. "Signalling in Discourse: A Functional Analysis of a Common Discourse Pattern in Written and Spoken English." In: *Advances in Written Text*

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[11] Some messages include elements suggestive of this, urging a change in behavior (e.g., I'v seen enough flame discussions elsewhere. Please, let's not have one here).

Analysis, ed. by M. Coulthard, 26-45. London: Routledge.

Jones, Linda K. 1977. *Theme in English Expository Discourse*. Lake Bluff, IL: Jupiter Press.

Kieras, David E. 1985. "Thematic Processes in the Comprehension of Technical Prose." In: Britton and Black, 59-107.

Larson, Mildred. 1984. "The Structure of Aguaruna (Jivaro) Texts." In: *Theory andApplication in Processing Texts in Non-Indoeuropean Languages*, ed. by R. E. Longacre, 155-209. Hamburg: Helmut Buske Verlag.

Longacre, Robert E. 1992. The discourse strategy of an appeals letter. In Mann and Thompson, 109-30.

Longacre, Robert E. 1996. *The Grammar of Discourse*. 2nd ed. New York: PlenumPress.

Mann, William C., and Sandra A. Thompson (eds.) 1992. *Discourse Description: Diverse Linguistic Analyses of a Fund-Raising Text*. Amsterdam: Benjamins.

Mann, William C., Christian M. I. M. Matthiessen, and Sandra A. Thompson. 1992. "Rhetorical Structure Theory and Text Analysis." In: Mann and Thompson, 39-78.

Martin, J. R., and P. Peters. 1985. "On the Analysis of Exposition." *Discourse on Discourse*, ed. by Ruqaiya Hasan, 61-92. Wollongong, Australia: Applied Linguistics Association of Australia.

Meyer, Bonnie J. F. 1985. "Prose Analysis: Purposes, Procedures and Problems." In: Britton and Black, 11-64; part II, 269-304.

Newton, Harry. 1995. "Teleconnect. Boardroom Reports," 1 March 1995. Quoted in *Business Communication News* 10:2.

Voss, James F., and Gay L. Bisanz. 1985. "Knowledge and the Processing of Narrative and Expository Texts." In: Britton and Black, 173-98; "Some Methodological Issues," 385-91.

Yates, Simeon J. 1996. "Oral and Written Linguistic Aspects of Computer Conferencing." In: Herring, 29-46.

ENABLER-ENABLEMENT RELATIONS IN ENGLISH

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1. Background

In their discussion of explanation in English and Korafe, Farr, Lowe and Whitehead (1985) point out that both Cause-Effect and reasons (Basis-Assessment) can be sufficient or enabling. They define enablement as:

> An enabling condition is one which is necessary for a certain course of action or state of affairs to take place or for a certain attitude to arise. But the condition does not compel the action or attitude....After an enabling condition is fulfilled, there is still a decision open to the participant concerned whether he will or will not go through with the course of action which depends on the condition. (1985: 136-137)

Thus Farr et al. explain enablement in terms of types of cause or reason, an approach followed by Lowe (1987: 37), who uses

(1) If John gets a visa, he will go to Brazil.

as an instance of "enabling causality." That is, he sees enablement as a special type of Cause-Effect. In contrast, Mann and Thompson define it as a separate relation in its own right:

> **Enablement** and **Motivation** form a subgroup [of relations], since both evoke a reader action. That is, they are found in texts that exhort readers to act by presenting offers, request, invitations, commands, or suggestions. **Enablement** provides information designed to increase the reader's *ability* to perform the action;... (1987: 15)

One of their examples of Enablement is:

(2) 1. Training on jobs. A series of informative, inexpensive pamphlets and books on worker health discusses such topics as filling a compensation claim, ionizing radiation, asbestos, and several occupational diseases...

6. For a catalog and order form write WIOES, 2520 Milvia St., Berkeley, CA 95704. (I.5.1)

They claim that Item 6 is the enablement of all of Item 1, but the relation there is not clearly one of enablement. They ignore the relation between the subordinate and main clauses of Item 6, which is perhaps the enablement they are seeking to define (i.e., writing for the form will *enable* the reader to obtain a copy). Although their recognition of enablement as a separate relation of meaning is important, their definition (above) unnecessarily restricts it to an *increased* ability, and not also the complete making possible of that ability.

An Enabler-Enablement relation is identified by Jordan (1992) in an analysis of a complete text:

(3) With your support, ZPG *can* arm our growing network of local activists...(p.214)

as the support would *enable* ZPG to arm their activists. In analyzing the same text, Mann et al. (1992) do not recognize this relation, as they only deal with relations between sentences.

However, the close affinity between Purpose-Means and Enablement suggested by Mann and Thompson's definition and example is an important feature to note, one which Farr et al. fail to point out. Like Mann and Thompson, I treat Enabler-Enablement as a relation and not just an auxiliary meaning to a relation as do Farr et al.; I also regard it as a binary pair like other logical relational pairs of Purpose-Means, Cause-Effect, Basis-Assessment and Problem-Solution (see Jordan, 1997) but with special affinities with the first two of these. This approach differs from Mann and Thompson's view of Enablement and Solutionhood as singular concepts separate from their counterparts Enabler and Problem.

2. Basic Principles and Use in Text

To start with basic principles of clause relations, we need to follow Winter's (1974) approach of recognizing the meaning between two parts of text by identifying the question that mediates between them. Thus in

(4) Welcome to 2050 when packed motorways mean travelling at speed. Computers control acceleration, braking and steering. (New Scientist, 15 Oct, 1994: 398)

Winter would have used "What will enable vehicles to travel at speed on the packed motorways of 2050?" as the mediating question, because the answer to this question is provided in the second sentence. This is an example of an unsignaled relation of Enablement-Enabler between two successive sentences; it also shows that we must often use the semantic/cognitive meaning to recognize the relation instead of relying on signals.

Although most enablers are nominal groups, we see here that they can be clauses or sentences. Enabler-Enablement relations occur between any two stretches of text - even within nominal groups as we see in the rank-shifted nominal "The work *made possible* by this grant..." and Example 10 to come.

The Enablement relation within a single clause is seen in:

(5) The electronics revolution of the past two decades *would not have been possible without* silicon semiconductors. (New Scientist, 15 Oct 1994: 23)

This relation-within-a-sentence parallels Cause-Effect relations within the clause, as noted by Quirk et al. using the example:

(6) The avalanche destroyed several houses. (1972: 351).

and following Longacre's (1972) use of "Agent and Causer." See Jordan 1997 for further background discussion. In Example 6, silicon semiconductors did not cause the electronics revolution on its own; they enabled it to happen, and the electronic revolution is what has been enabled.

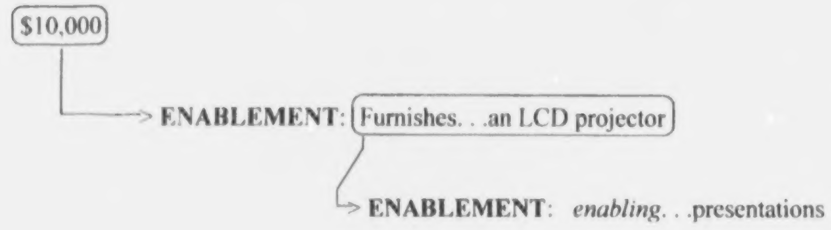
3. Basic Enablement

As noted by both Mann and Thompson and by Farr et al., Enablement enables someone or something to do something or enables something to happen. This is seen in:

(7) **$10,000** Furnishes one of the Faculty's most heavily used lecture theatres with an LCD projector *enabling* professors to give state-of-the-art,

multimedia presentations. (Arts and Science Leaflet, Queen's University, Canada, 1997)

There are two enablement relations here: first the $10,000 donation would enable the faculty to provide the LCD projector, and this in turn would enable professors to give modern presentations. This sequence of relations can be shown as:

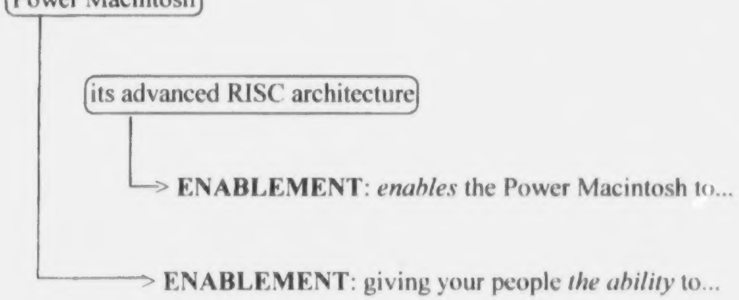

$10,000
ENABLEMENT: Furnishes. . .an LCD projector
ENABLEMENT: *enabling*. . .presentations

Final *-ing* signaling of the Cause-Effect relation is discussed by Jordan (1989); in Example 7, we see the same device being used to indicate Enabler-Enablement.

Two Enablement relations also occur in the following example, but in a parallel rather than series form:

(8) Why is it that so many large operations are investing in Power Macintosh?...

For one thing, its advanced RISC architecture *enables* a Power Macintosh to outperform even the fastest PC's. In fact, the Power Macintosh 8100 is the most powerful mainstream personal computer ever built - *giving* your people *the ability* to get significantly more done, in significantly less time. (New Scientist, 15 Oct 1994: 22)


Power Macintosh
its advanced RISC architecture
ENABLEMENT: *enables* the Power Macintosh to...
ENABLEMENT: giving your people *the ability* to...

Within the clause, the enablement relation follows the pattern <enabler as subject + enablement signal as verb + person or thing + to-infinitive + complement>. The enablement signal can be any synonym of *enable* (e.g., *allow, permit, authorize, entitle, empower*), and also compound verbs such as *make possible, make viable, make feasible* and *give the right*.

4. Possibility, Permission and Requirement

The above examples make it physically possible for someone to do something. Another sub-relation of Enablement often occurs in a legal context in the form of "enabling legislation," which allows (but does not require) someone or a lower level of authority to do something. Such legal use of permissive enablement is shown twice in the following:

(9) The provincial court decision *allows* the man accused of raping her to examine the girl's so-called confidential counseling records....A 1993 Supreme Court ruling *allows* accused sex criminals to apply for access to a plaintiff's counseling records to help build a record. (Kingston Whig Standard, 10 Apr 97: 6)

Again in a legal context, the following example shows the enabler in a matrix clause and the enablement in the main clause. Then a whole binary relation occurs within a rank-shifted wh-nominal:

(10) In February, Chief Justice Bryan Williams of the B.C. Supreme Court *ruled* that Stockwell would be *allowed* to sue the NDP administration for electoral fraud....Whether the courts would *allow* a full-scale class action to proceed is not clear. (Maclean's, 19 Mar 97: 50)

The last two examples involve permission rather than possibility. We move to requirement (the third sub-relation of enablement) in:

(11) Shortly after Aloha Flight 243 unzipped in the sky above Hawaii, Congress passed the Aviation Safety Research Act of 1988. *The law authorizes* the Federal Aviation Administration, ordinarily a regulatory agency, to conduct research into aircraft safety. (Aerospace America, May 1992: 26)

The meaning of *authorize* is stronger than allowing or permitting, yet it does not actually force the FAA to do this. This would have been the "causation" of "I made her do it," which is a different relation. I am therefore widening Farr et al.'s definition to include requirement between permission and causation as one of the three sub-relations of enablement. As the modal semantics *can, may, have to*, etc. relate to these three sub-relations, they need to be re-examined in this light.

5. Enablement and Purpose-Means

Enablement-Enabler relations are closely related to the Purpose-Means relation, discussed recently by Thompson (1985), Jordan (1996) and Hwang (1997). It is often difficult to distinguish between these two relations, as we see in:

(12) *Through* a patented process, he turns wastepaper into a material that is both malleable and strong. (Compressed Air, Jun 96: 10)

The subordinate clause could be regarded as a Means clause (i.e., the Means by which he does this) or as an Enabling clause (i.e., that which enables him to do this). If there are several possible Means of achieving a Purpose, then the Means would be more appropriate. But as, in this case, this is the *only means*, then that should be regarded as Enabler. That is, something that provides another Means of achieving something is not an Enabler as an Enabler already exists.

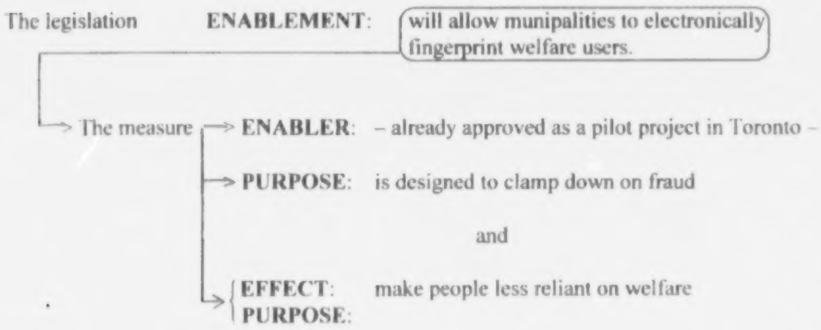
This approach differs from that adopted by Farr et al. (1985), who define Enablement in terms of a *necessary* condition. The view taken here is that an Enabler is the only means of doing something at that time, as in Example 12. That may or may not be necessary, however. Should another method be found, then clearly the first one is (and never was) necessary, yet it still enabled the person to do the work stated. When we have two or more "enablers," they are the Means of achieving a Purpose.

Enablement and Purpose occur in close proximity in:

(13) The legislation will *allow* municipalities to electronically fingerprint welfare users. *The measure* – already approved as a pilot project in Toronto – *is designed* to clamp down on fraud and make people less reliant on welfare. (Kingston Whig Standard, Jun 13, 1997: 1)

The legislation enables (permission) the municipalities to introduce the new system (Enabler-Enablement), but the measure of fingerprinting is only one of several means of reducing fraud (Means-Purpose). In this example, the measure has two levels of

Enablement: provincial and then, for Toronto, the city. Its initial purpose is given, followed by a joint EFFECT/PURPOSE statement. The relations can be shown as:


The legislation
ENABLEMENT:
will allow munipalities to electronically fingerprint welfare users.
The measure
ENABLER:
– already approved as a pilot project in Toronto –
PURPOSE:
is designed to clamp down on fraud
and
EFFECT:
PURPOSE:
make people less reliant on welfare

Thus Enablement permits, requires or makes it possible for someone or something to do something, whereas Purpose says what something does or is intended for.

The signaling systems of Enabler-Enablement and Purpose-Means are very close, with overlapping signaling of the to-infinitive and *by...-ing* subordinators. These signaling devices are unreliable, as we saw in Example 12 and in:

(14) *By* work*ing* with our customers, we at CPM are arriving at the most cost-effective solutions. We can offer you more die specifications to meet your exact needs than anyone else....And *with* CPM's unique Q-One Quick Change System, you can remove one die and roller set from your mill and replace it with a new set. (Compressed Air, Jun 1996: 45)

The first sentence could be regarded as Means-Purpose or Enabler-Enablement (working with customers enables them to arrive at those solutions). The second sentence could loosely be regarded as Means-Purpose in keeping with the signaling effect of the to-infinitive, but Solution-Problem would be a better fit. The second sentence is connected with *with*, which is normally regarded as an indicator of Basis-Assessment or Cause-Effect; however, here it connects Enabler-Enablement. Thus for connections between clauses of a sentence, the only reliable indication of all these relations is the semantic test of the mediating question. Between sentences and larger stretches of text, the signaling becomes clearer, as more precise "Vocabulary 3" (Winter, 1977) words such as *enable, cause, allow, way, aim, basis*, etc. are used to indicate the type of connection.

The Means of the Enabler provides information about how the enabler achieves the enablement. Here is an example:

(16) Almost as easy as pushing a button, D-M-E Ultimate can *save* you hundreds of design hours while *enhancing* the quality of your molds. *Here's how...* (Modern Plastics, Jul 95: 4)

The next three paragraphs of the example describe the Means by which the D-M-E enables companies to do what has been claimed.

6. *Enablement and Cause-Effect*

Although most examples of enablement have a close affinity with Purpose-Means, others have a similar affinity with the Cause-Effect relation and therefore could be mistaken for it. The essential difference between Purpose-Means and Cause-Effect is that the former deals with human aims, goals, intents, purposes, etc. and the ways or means of achieving them, whereas the latter deals with "the unwitting (generally inanimate) cause of an event" (Quirk et al. 1972: 351). As we cannot give permission for or require Cause-Effect occurrences, these can only occur with the possibility sub-relation, although this can also involve people and therefore Purpose-Means.

My view is that enablers can enable machines to do things as well as people. This occurs when a voltage applied to the base of a transistor allows a current to flow from emitter to collector if other conditions are appropriate. Or when a house protection system is "enabled" (armed) and operates under set conditions. Although dictionaries seem reluctant to recognize enablement other than enabling people to do things, the language does not: the same overt enablement signals of *allow, permit, ensure*, etc. are used for this sort of enablement as for those that enable people to do things. A midway enablement example between affinity with Purpose-Means and Cause-Effect is:

(17) It is equipped with an enzyme called a urease that breaks down urea in the gastric juice to produce an alkaline mantle of bicarbonate and ammonia. *This allows* the bacterium to survive the hostile acidic environment of the stomach. (New Scientist, 15 Oct 94: 13)

This is presumably re-entering the immediately preceding nominal (*an alkaline...ammonia*) into the enablement relation, but is the relation one related to Means-Purpose or Cause-Effect? Is it more like allowing the attainment of a purpose, or making possible an effect? If we assume the bacterium can think and have goals it is the former, but if not it is the latter. And if the latter, we have to recognize enablement for things that do not have human goals, including machines.

Much more clearly connected to Cause-Effect is:

(18) The SSAR also has a self-sensing capability, *which allows* the rotor to perform a self-diagnostic check and automatically report any abnormalities to the flight crew. (Compressed Air, Jun 1996: 4)

As with human enablement, this does not inevitably lead to a report on abnormalities as there may not be any (note the use of *any*). The capability enables the rotor to produce the report if any abnormalities occur. The capability is related to the Cause-Effect meaning as no human purpose is involved.

Where the making possible is something that happens automatically, an affinity with Cause-Effect should be recognized. We see both types in:

(19) Japan's new tsunami warning system had its first live test last week when a massive earthquake hit the northeast coast of Hokkaido. The system *ensured* that a warning flashed across television screens throughout Japan just five minutes after the first tremors.

> A network of seismometers across the country sent data to a central computer at the JMA's headquarters in Tokyo, *automatically prompting* the creation of a warning caption for TV screens. At the push of a button, the message was sent to Japan's nine television channels and appeared almost instantaneously on TV screens.
>
> *At the same time*, the computer was calculating the approximate size of any tsunami likely to follow the earthquake, based on a formula that takes into account factors such as the magnitude of the earthquake, the depth of its focus, and how deep the sea is at that point.
>
> The improved automation *meant* that the system was able to send warnings much faster than its predecessor...(New Scientist, 15 Oct 94: 7)

Many of the enablement relations here relate to Cause-Effect as the new system enables machines or computers to do things; however affinity with Purpose-Means occurs in the second paragraph as final enabling control is with humans.

Although not immediately obvious, enablement is related to Purpose-Means in:

(20) Model TLS-P100 is a single axis unit *that allows* initial setup parameters to be programmed and recalled as needed. (Modern Plastics, Dec 1993: 90)

because the implicit agent for the agentless passive is the people involved, who have a purpose made possible by the single axis unit.

Affinity to Purpose-Means may be even less obvious, as in:

(21) Recently completed work in Germany has resulted in process technology that *could make feasible* polymer surgical screws for mending broken bones. (Modern Plastics, Dec 1993: 11)

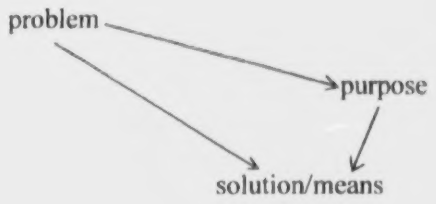
This means that the technology could make it feasible for someone to create these screws, and so the affinity is with Purpose-Means rather than Cause-Effect.

7. Connecting the Logical Relations - A Hypothesis

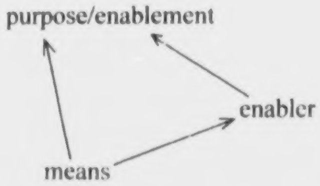
We are now in a position to recognize connections between all the logical relations: Basis-Assessment, Cause-Effect, Purpose-Means, Enabler-Enablement, and Problem-Solution. Starting with the example from Jordan, 1984: 78-79:

(22) To counteract the problem of accidental ignition of fluid in spray form when using hydraulic fluids, the British Standards Institute has produced a new draft for development. (Safety, April 79: 8)

The problem is clearly the nominal *the problem...fluids* and the solution is the main clause. In addition the subordinate clause is the purpose and the main clause is the means:



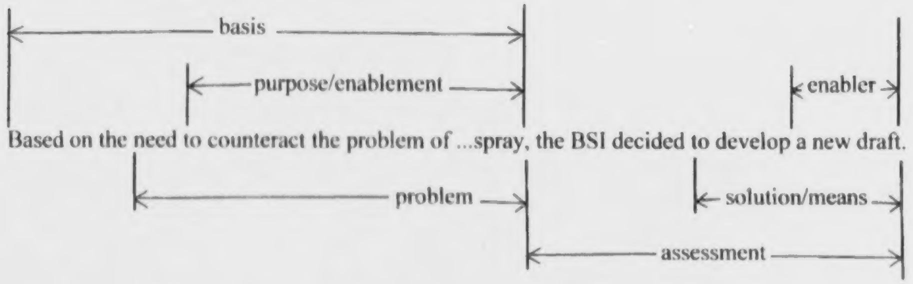
In addition, we can recognize the new draft as the enabler and the enablement as the subordinate clause; the means is the development of the enabler. Thus


purpose/enablement
enabler
means

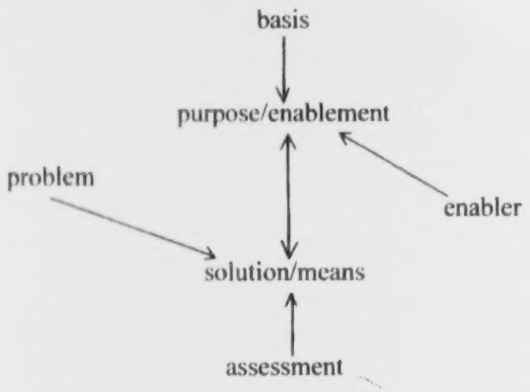
We can add basis and assessment as an overall relation by using:

Based on the need to counteract the problem of...spray, the BSI *decided to* develop a new draft."

The relations can be seen as:


basis
purpose/enablement
enabler
Based on the need to counteract the problem of ...spray, the BSI decided to develop a new draft.
problem
solution/means
assessment

This produces the following composite diagram of relationships:



With our new understanding of the connection between Enabler-Enablement and Cause-Effect (and also the established connection between Problem-Solution and Cause-Effect – see Hoey, 1983 and Jordan, 1984), we should now be able to establish the connections on the "back side" of the diagram. This might yield a three-dimensional, eight-sided model with basis and assessment at the top and bottom, purpose and means on the "front" and cause and effect on the "back," and problem and enabler on the sides.

Such a model would depict the fact that Purpose-Means and Cause-Effect are similar but opposite relations dealing with human goals and inevitable result respectively; it would also show that both problem and enablement occur with both of these pairs in similar ways but acting on the initiating and resulting elements respectively. Finally the diagram would depict all these relations as being perceived within an overall framework of human understanding and reasoning: the Basis-Assessment relation.

8. Final Points

The relations of Enabler-Enablement are viewed here as binary clause relations like the other logical relations of Cause-Effect, Basis-Assessment and Purpose-Means. Like those other binary pairs of meaning connection in text, they occur in either order and between any one epitomizable stretch of language and another – both within and between sentences and paragraphs, and even within nominal groups. Many enablers are nominal groups, although larger stretches of text can also be enablers.

Semantically, many Enabler-Enablement relations are similar to those of Purpose-Means, but differ in that they allow something to happen and indicate only one current method as opposed to the many means of achieving most purposes. They occur in complex combinations with the other logical relations, including Problem-Solution complexes. Though not discussed here, enablement relations have a negative form: the "enabler" can prevent something from occurring. The relation also occurs as a partial element that *helps* someone or something to do something, and that can be an improvement or enhancement of an existing condition.

Enablement can be unsignaled, but is more typically indicated in some way or other in the text. The typical subordinate indicators of Purpose-Means (e.g. to-infinitive, *by...-ing* and *through*) are shared with this relation, and the final *-ing* signaling of Cause-Effect is also used for enablement. Considerable thought is often needed to distinguish between enablement and other relations as often the only reliable test is the mediating question that can be interposed between the two elements of the relation. Within the simple clause and between sentences and paragraphs, the signal of the relation is by "Vocabulary 3" items such as *enable, permit, let, allow, authorize, require* – and also complex verbs such as *make it possible/feasible/viable* and *give the right*.

The different meanings of these verb forms allow us to recognize three types of Enablement: Permission (giving permission or authority for someone to do something), Requirement (requiring someone to do something), and Possibility (allowing something to happen). The last of these can also have a close affinity with Cause-Effect relations, and this connection should enable us to create a three-dimensional model connecting all the logical relations within an overall system.

Clearly much more work is needed to explain this relation and its connection with the other logical relations.

REFERENCES

Farr, C.J.M., Lowe, I. and Whitehead, C.R. 1985. "Explanation in English and Korafe." In *Systemic Perspectives on Discourse*, eds. J.D.Benson and W.S. Greaves, 135-162. Norwood, NJ: Ablex.

Hoey, M.P. 1983. *On the Surface of Discourse*, Allen and Unwin.

Hwang, S.J.J. 1997. "Purpose Clauses in English and Korean." In *LACUS Forum* 22, 496-508.

Jordan, M.P. 1984. *Rhetoric of Everyday English Texts*. Allen and Unwin.

— 1988. "Some Advances in Clause-relational Theory in English." In *Systemic Functional Approaches to Discourse*, eds. J.D.Benson and W.S.Greaves, 182-301, Norwood, NJ: Ablex.

— 1989. "Beyond Impressionism: Evaluating Causal Connections." In *Technical Writing: Theory and Practice*, eds. B.E.Fearing and W.K.Sparrow, 102-114. New York: The Modern Language Association of America.

— 1992. "An Integrated Three-pronged Analysis of A Fund-raising Letter." In *Discourse Description: Diverse Linguistic Analyses of A Fund-raising Text*, eds. W.C.Mann and S.A.Thompson, 171-226. Amsterdam: John Benjamins.

— 1996. "To-Infinitive Groups As Clauses and Post-modifiers in English." *LACUS Forum* 21, 258-68.

— 1997. "Subtle Signalling of Logical Relationships in News Reporting." *LACUS Forum* 22, 325-40.

Longacre, R.E. 1972. *Hierarchy and Universality of Discourse Constituents in New Guinea Languages*, Washington DC: Georgetown University Press.

Lowe, I. 1987. "Two Ways of Looking At Causes and Reasons," In *Grammar in the Construction of Texts*, ed. J.Monaghan, 37-46, London: Francis Pinter.

Mann, W.C., Matthiessen, C.M.I.M., and Thompson, S.A. 1992. "Rhetorical Structure Theory and Text Analysis." In *Discourse Description: Diverse Linguistic Analyses of A Fund-raising Text*, eds. W.C.Mann and S.A.Thompson, 39-78. Amsterdam: John Benjamins.

Mann, W.C. and Thompson, S.A. 1987. "Rhetorical Structure Theory: A Theory of Text Organization." In *Discourse Structure*, ed. L.Polanyi. Norwood, NJ: Ablex.

Quirk, R., Greenbaum, S., Leech, G. and Svartvik, J. 1972. *A Grammar of Contemporary English*, London: Longman.

Thompson, S.A. 1985. "Grammar and Written Discourse: Initial Vs. Final Purpose Clauses in English." *Text*, 5: 55-84.

Winter, E.O.O. 1974. *Replacement As A Function of Repetition: A Study of its Principal Features in the Clause Relations of Contemporary English*, PhD Thesis, London: University College, University of London.

Winter, E.O.O. 1977. "A Clause Relational Approach to English Texts: A Study of Some Predictive Lexical Items in Written Discourse." *Instructional Science* (Special Issue), 6:1-78.

STYLISTICS: THE CASE FOR THEMATIC ROLES REOPENED

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Originally, I had thought of titling this paper "The Case for Shallow Thematic Roles," reflecting the status of the linguistic material I am working with, somewhere between Fillmore's classic (1968) paper and Wierzbicka's (1980) monograph, *The Case for Surface Case*. This also reflects the historical fact that mainstream linguists have come, following a usage that derives from Gruber (1965), to refer to Fillmore's "deep cases" as thematic roles or, especially in GB theory as "theta theory" (Haegeman 1994). It further Reflects the fact that these linguistic entities derive from an orientation somewhere between the structuralism that still permeates mainstream American linguistics and functionalism of the sort that informs Givón (1995). Finally, it reflects the fact that the thematic role relations that I want to investigate seem to me to lie somewhere between syntax and semantics, a fact that has been noted from time to time, by Fillmore, among others, which has led to some controversy from time to time.

Almost from the publication of Fillmore's (1968) paper, researchers who study language use--workers in stylistics, the linguistics of literature, discourse analysis, pragmatics, language variation--have wondered whether these theoretical entities, thematic roles, can be used to characterize various aspects of language use. In their (1980) textbook, Traugott and Pratt devoted considerable time and space to the way in which thematic roles reveal how the heroine/narrator of Daniel Defoe's (1722) novel, *Moll Flanders*, perceives herself vis-à-vis the action of the novel, pointing out, among other things, that "while a thief, Moll does seem to present herself as an Agent, but when she is arrested and condemned to thieving, she returns to her old [more usual] roles of Experiencer, Possessor, and Patient" (216). Traugott and Pratt also note M.A.K. Halliday's (1973) study of William Golding's *The Inheritors*, which although it is not in quite the same framework as most thematic role studies, uses as analytic and explanatory devices many of the same concepts as thematic role theory.

The study reported here is one of a long series of attempts to place the study of language use on a rigorous footing by formulating hypotheses as explicitly as possible, by using the normal scientific method of alternative hypotheses, and by insisting that research hypotheses be empirically falsifiable, in a loosely Popperian sense, preferably through quantitative analysis.

Earlier studies included the use of the probability of occurrence of certain classes of words to test the contention that Shakespeare wrote the poem, "Shall I Die? Shall I Fly" (Mills 1989), use of syntactic structure to distinguish among oral narratives, freshman narratives, and literary narrative by Hemingway, Wharton, Faulkner, and Fitzgerald (Mills 1992a), use of semantic and frequency data for verbs to distinguish among the same works (Mills 1992b, 1993a), and the use of semantic features and frequency of verbs to examine Shelley Fisher Fishkin's linguistic arguments that the character Huckleberry Finn was modeled on an African American boy (Mills 1994).

One thread running through this earlier work was the claim that one could use variation in the use of some linguistic variable to characterize individual style in language use--all other things being equal. Of course, other things are never equal. In order to reduce confounding variables to a minimum, I began several years ago to draw raw linguistic data from a set of samples taken from five contemporary novels in the popular culture genre of the detective story. Sources of linguistic data for the current study, as well as several earlier ones, were the following works:

Table 1. Sources of Theta Data

Barnard, Robert. 1989. *Death and the Chaste Apprentice*. New York: Dell.
__________. 1993. *A Hovering of Vultures*. New York: Charles Scribner's.
Cross, Amanda. 1981. *Death in a Tenured Position*. New York: Dutton.
__________. 1990. *The Players Come Again*. New York: Random House.
Grafton , Sue. 1988. *"E" is for Evidence*. New York: Bantam.
__________. 1996. *"M" is for Malice*. New York: Holt.
Hillerman, Tony. 1988. *A Thief of time*. New York: Harper & Row.
__________. 1996. *The Fallen Man*. New York: Harper Collins.
McBain, Ed. 1981. *Rumpelstiltskin*. New York: Warner.
__________. 1996. *Gladly the Cross-eyed Bear*. New York: Warner Books.

A chapter was selected at random from each of these works and scanned into a word processor file. A total of 41,955 words of text was analyzed. Data from these chapters have been used in various ways in various studies. For example, it was shown that data on the semantics of verbs and choices the authors made among verbs could be used to identify individual style (Mills 1993b). Even better, discourse structure and individual style were shown to be reflected rather strongly in authors' use of auxiliary verbs (Mills 1995).

Over the years, I have also sought to examine whether the sorts of analyses conducted by Traugott and Pratt (1980), and others, could be tested quantitatively. Specifically, can variation in the use of thematic roles serve to differentiate one author from another? That is, given the thematic role structures common to a given language, in this case English, do individual language users *use* these thematic roles in characteristically different ways?

If variation in the use of individual verbs matters stylistically, does variation in the use of more abstract thematic role relations of NPs also matter? In many ways, this research can be seen as an attempt to do for NPs what Dorothy Nameri's research on active verbal expressions has done for dramatic structure and character analysis in Shakespeare (Nameri 1995).

As it turns out, thematic roles (or deep cases or theta theory) do not easily lend themselves to rigorous analysis of style. In fact, the choice of *what* thematic roles to look at may be crucial. Table 2 contains a few examples of mainstream thematic roles (or cases) over the years.

Some things should be noted. First, the lists of thematic roles are given as the original researchers give them: no attempt has been made to match, for example, Fillmore's use of Instrumental with Traugott and Pratt's use of Instrument, or Fillmore's Objective with Traugott and Pratt's Patient or O'Grady, et al.'s Theme. That is, each column in Table 2 should be read independently of the columns on either side. Finally, all the workers cited in Table 2 have disclaimers indicating that their lists of thematic roles are not exhaustive: in the words of O'Grady et al., "In most linguistic analyses, at least the [above] thematic roles are recognized" (262). Fillmore's own inventory of thematic roles has varied over the years. In their Fillmore reader, Dirven and Radden (1987) have tabulated and compared the various "deep cases," along with their syntactico-semantic characteristics, that Fillmore proposed in nearly two decades of publication.

Table 2. Some Thematic Roles

Fillmore 1968	Traugott & Pratt 1980	O'Grady, et al 1997
Agentive	Agent	Agent
Instrumental	Force	Theme
Objective	Instrument	Source
Factitive	Experiencer	Goal
Locative	Source	Location
Benefactive	Goal	
	Path	
	Location	
	Possessor	
	Patient	

In my own introductory grammar of English (Mills 1990) I suggested eight thematic roles, but in teaching introductory linguistics classes in recent years, I have suggested that four roles--Recipient, Source, Goal, Path--should probably be viewed as sub-types of a larger, more general thematic role, the Locative, leaving a total of four "real" thematic roles: Agent, Patient, Instrument, and Locative.

Table 3. Some Thematic Roles Defined

Agent	the entity that performs an action
Theme	the entity undergoing an action or a movement
Source	the starting point for a movement
Goal	the end point for a movement
Location	the place where an action occurs

Various definitions of thematic roles have been given in various sources. Table 3 (7.14 in the original) reproduces O'Grady et al.'s definitions of their thematic roles, which are representative of those of most linguists.

As it happens, debate over how many thematic roles there are, and what their meanings are, are not mere nitpicking.

Using a few of the mainstream inventories of thematic roles--Traugott and Pratt's, O'Grady et al.'s, and the most extensive (eight thematic roles) of mine--resulted in no significant differences among the works sampled. In other words, variation in thematic role structure did not seem to identify any individual styles.

At this point, however, I had the opportunity to conduct field work on a language (Estonian) which has a great many (14) surface cases. In examining the ways in which Estonian encoded "deep" meanings, especially thematic roles, into "surface" morphological cases, I came to see that the usual list of mainstream linguistic thematic roles--with the magic number of 7, plus or minus 2, thematic roles--tends to correlate well with the number of surface cases in many Indo-European languages, e.g., Latin, German, Old English, the Slavic languages, and tends to be rather impoverished when compared to the case inventories of other language families, e.g., Finno-Ugric languages.

Re-examination of the raw data in light of this richer framework, attending to the thematic roles of NPs, especially those signalled by prepositions, revealed that the following set of roles might prove productive for English.

Table 4. Thematic Roles for English

Roles:	Surface Marker:
Agent	0, *by*
Theme	0
Patient	0
Experiencer	0, *to, for*
Possessor	NP *'s, of*
Partitive	many, *many of, few of, a few, few, some, some of, any, any of*
Instrument	*with, from, of, by*
Containing	*in, inside, within, for*, etc.
Touching	*at across on, atop, up*, etc.
Near	*by beside, beneath, under, over, about, after, around, round, before ,behind, in back of, in front of, underneath, near with*, etc.
Far	*without, except, in spite of, despite, away, from, outside*, etc.
To	*to, toward, into, onto, under, over*, etc.
Away	*away, out, out of, from*, etc.
Through	*through, throughout, during*, etc.

Because I was interested in individual use of thematic roles in connected discourse, I sampled a complete chapter from each of the 10 works listed above. Because individual authors and individual books vary greatly in chapter length, the number of thematic roles in each sample varied greatly, ranging from a low of 844 thematic roles in Hillerman (1996) to a high of 3199 in McBain (1996).

When we examine the proportions of thematic roles found in each author and each work, these results proved to be statistically significant (chi-square = 486.46 , df=117, p<.001). In particular, looking at the differences between observed occurrences of particular thematic roles and their expected occurrences, we see that the largest departures from what we might have, proportionately, expected come in the works of Barnard, Cross, and Hillerman.

Table 5. Thematic Roles in the Data

	Barnard 89	Barnard 93	Cross 81	Cross 90	Grafton 88	Grafton 96
Agent	128	158	271	265	164	231
Theme	138	197	341	381	212	285
Patient	139	189	298	311	172	235
Experiencer	82	116	312	374	148	249
Possessor	137	101	194	212	157	206
Partitive	28	23	52	85	26	57
Instrument	15	11	17	24	29	39
Containing	51	49	81	70	38	54
Touching	66	88	126	156	109	151
Near	31	21	30	27	24	26
Far	30	23	37	31	18	36
To	42	37	71	60	81	98
Away	23	29	42	45	38	56
Through	25	8	13	10	17	34

	Hillerman 88	Hillerman 96	McBain 81	McBain 96
Agent	145	152	242	456
Theme	201	158	256	520
Patient	160	95	320	485
Experiencer	92	126	241	422
Possessor	133	81	223	324
Partitive	25	21	40	97
Instrument	43	13	44	71
Containing	34	15	80	142
Touching	120	82	196	302
Near	22	16	27	58
Far	39	12	52	66
To	55	34	88	138
Away	50	38	36	70
Through	28	1	27	48

Looking at what I term the major thematic roles – Agent, Theme, Patient (entity in a state or undergoing a change of state), Experiencer (animate entity in a perceptual or psychological state or affected by an action), and Possessor – it turns out that Barnard, in both the works sampled, has many fewer occurrences of Experiencer than expected, and Cross, especially in Cross (1990) has a great many more occurrences of Experiencer than expected. Barnard (1989) is comparatively high on Possessor, but Barnard (1993) is moderately lower. Hillerman (1988) shows many fewer occurrences of Experiencer than expected, but this pattern is not repeated in Hillerman (1996). Viewed overall, it appears that only the Experiencer role consistently varies from author to author. Figure 1 charts the percentage of total thematic roles devoted to Experiencer.

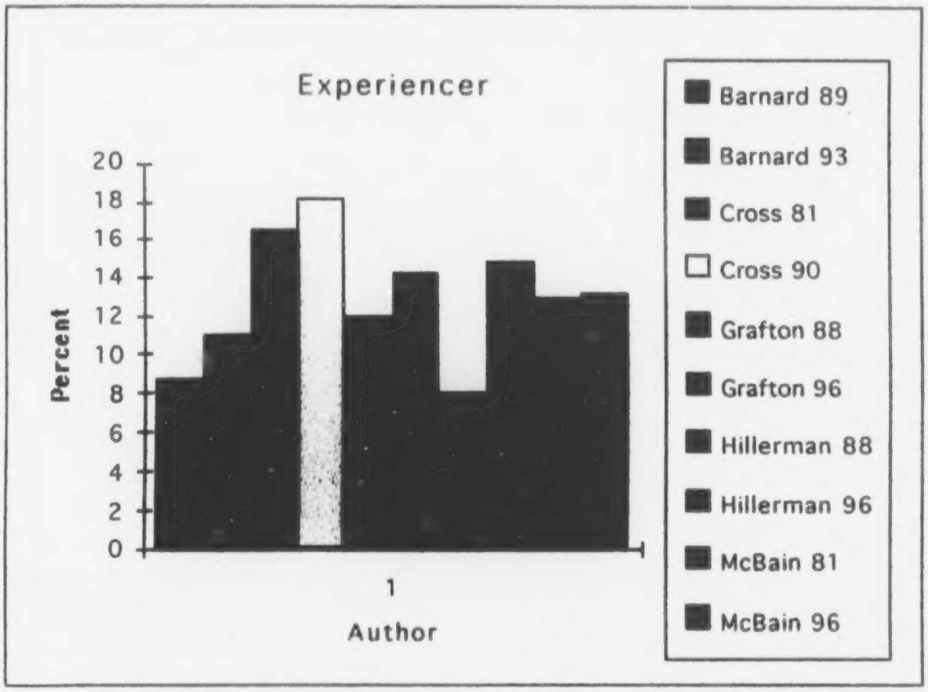

Figure 1. Experiencer Role in Ten Works by Five Authors

Looking at the minor thematic roles, Partitive and Instrument, we see that the Instrument role varies considerably from work to work and author to author. Cross, especially (1990) has considerably fewer occurrences of Instrument than expected. Most of the salience of the Instrument role comes, however, in Hillerman (1988), which contains a great many more occurrences than expected. The picture is blurred a bit, though, by Hillerman (1996), which has about as many occurrences as expected. Figure 2 shows the percentages of Instrument roles.

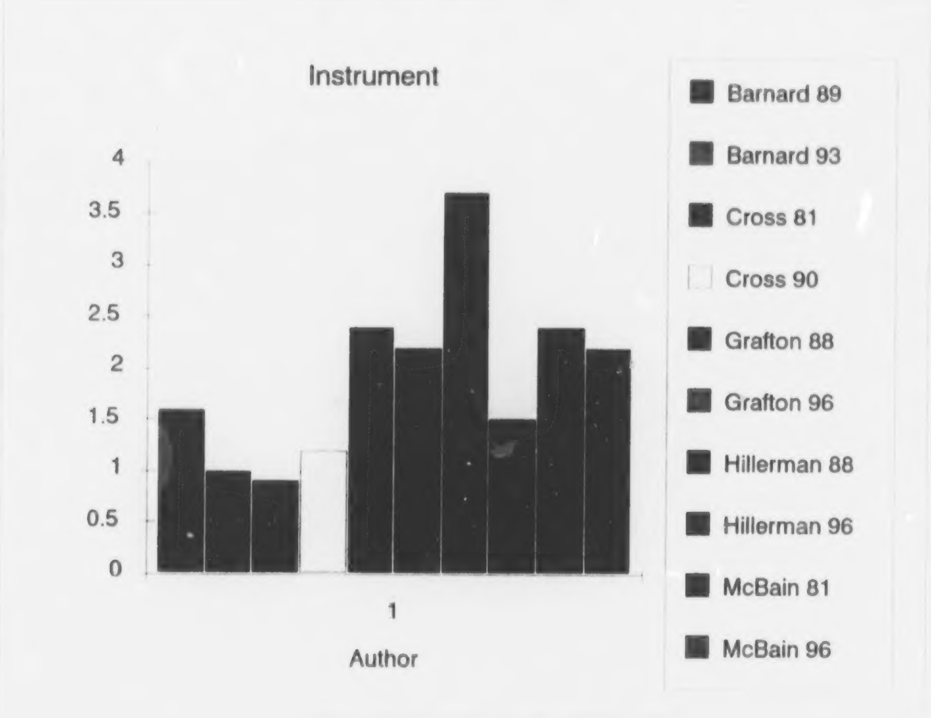

Figure 2. Instrument Role in Ten Works by Five Authors

The local thematic roles--Containing (roughly equivalent to inessive), Touching (roughly equivalent to adessive), Near, and Far--contribute moderately to variability, but only Containing contributes importantly. Barnard, especially (1989), has many more Containing roles than expected. Hillerman, on the other hand, has many fewer Containing roles than expected, especially Hillerman (1996). Figure 3 shows the percentages of the Containing role.

The thematic roles designating motion turn out to be quite important. Of the 14 thematic roles, Through turned out to contribute the most to variability among authors and works. Unfortunately, occurrences of this role are consistent across works in only two of the authors. Cross has moderately less Through, which seems consistent with her generally static, introspective style. While McBain has a moderate excess of Through. Most of the significance of Through comes, however, from the wild variability in its occurrence in two authors, Hillerman and Barnard. Barnard (1989) has many more (25) occurrences of Through than expected, and Barnard (1993) has considerably fewer (8). With Hillerman the differences are even more extreme. Hillerman (1988) has many more (28) than expected, and Hillerman (1996) has almost one instead of the expected 11.

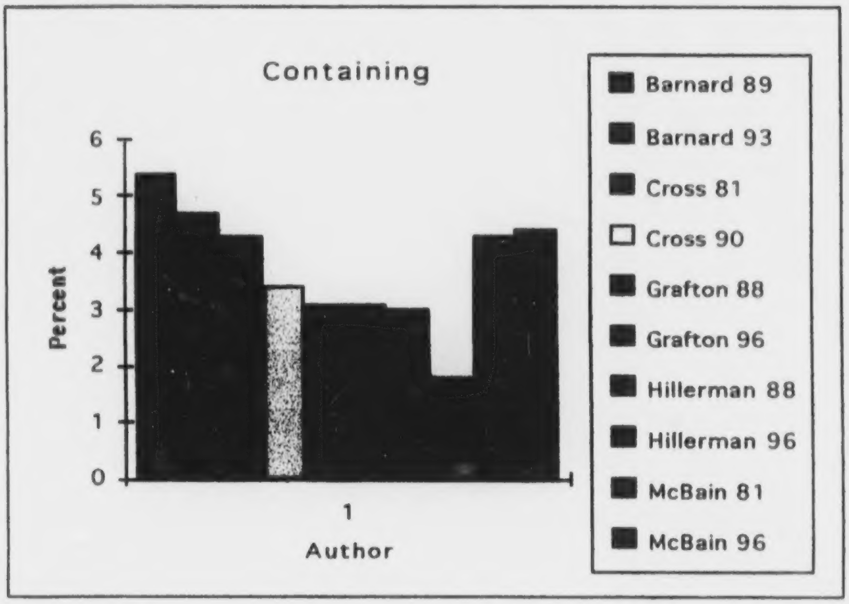

Figure 3. Containing Role in Ten Works by Five Authors

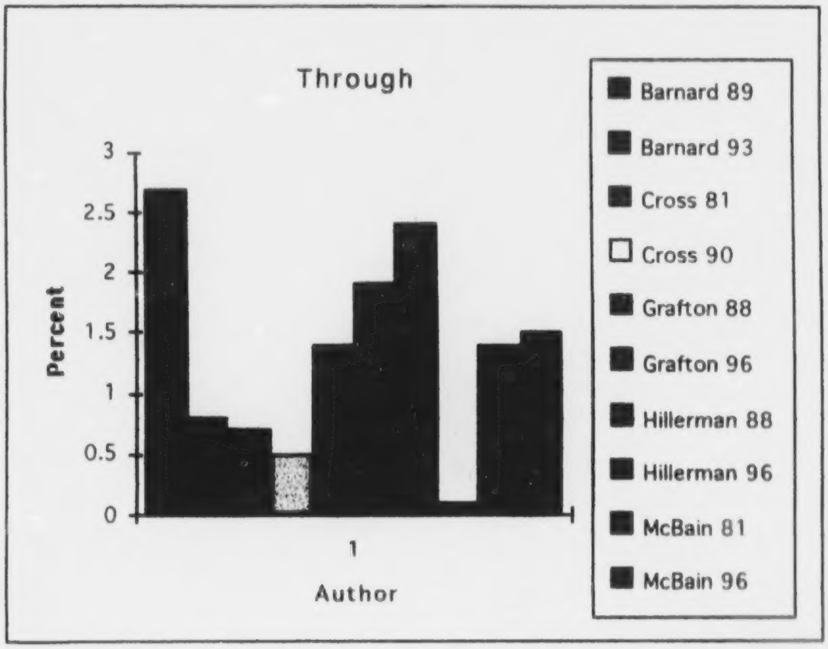

Figure 4. Through Role in Ten Works by Five Authors

The Away role is also quite important in characterizing Hillerman's style. In both Hillerman (1988) and (1996) we find considerable more occurrences of Away than expected, especially in 1996.

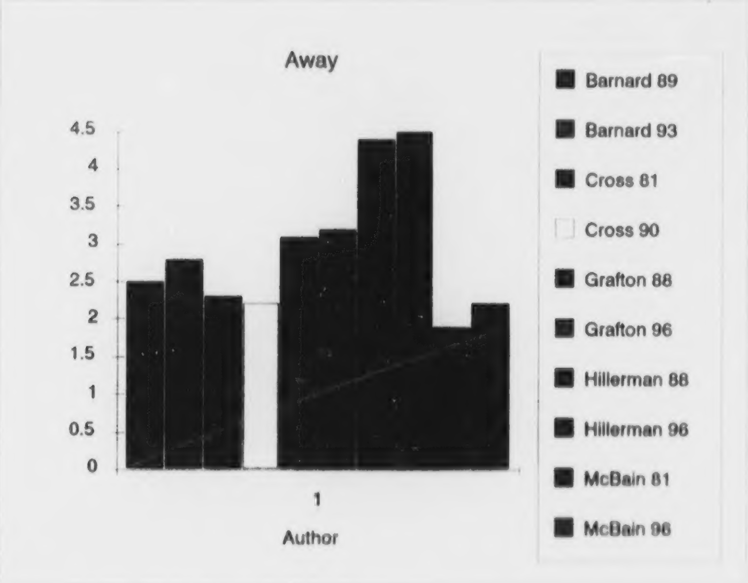

Figure 5. Away Role in Ten Works by Five Authors

Finally, the To role contributes to overall variability, although it serves less than other motion roles to differentiate individual authors. As might be expected, Cross has fewer occurrences of To than expected, especially in (1990). But both works by Grafton contain more occurrences of To than expected, especially Grafton (1988).

At this point we can ask whether variability in the occurrence of thematic roles within authors is not so great as to preclude any generalizations concerning individual style. When we look at individual authors and examine the proportions of the various thematic roles, we see that for three of them differences from work to work are not statistically significant. Cross, Grafton, and McBain have quite consistent styles in their uses of thematic roles. Barnard, however, varies significantly (chi-square=42.23, df=13, p<.001) from 1989 to 1993. And Hillerman shows even more differences (chi-square=74.09, df=13, p<.001) between 1988 and 1996.

With these two caveats in mind, I believe, though, that we can combine data from each of the two works to characterize individual styles. For Cross, the Experiencer role is most important. We could characterize her style as introspective, psychological, and static. Barnard and, to a lesser degree, Grafton shows an abundance of the Through role. We might characterize their styles as transactional.

Hillerman's style tends to involve motion Away from the narrator, away from other characters. Grafton, in contrast to Hillerman, tends to have events moving toward characters. Hillerman also has considerably fewer occurrences of the more static Containing role than the other authors. Finally, McBain has considerably fewer occurrences of the Theme role than other authors.

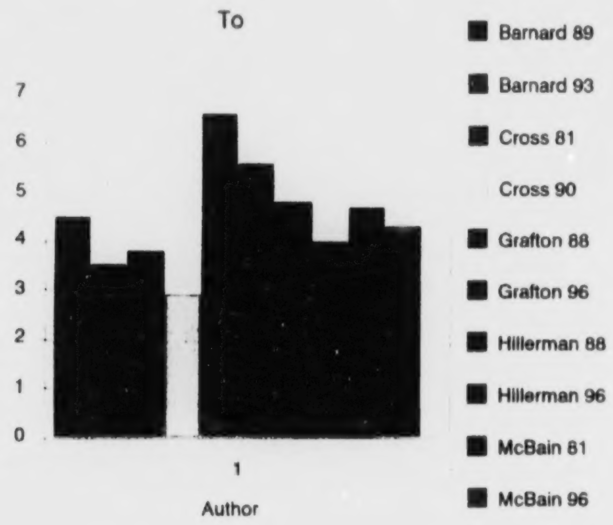

Figure 6. To Role in Ten Works by Five Authors

Clearly, however, these are preliminary results. Much work remains. More sophisticated statistical analyses need to be performed: in particular, the application of multivariate techniques to data like these needs to be carried out to replace the informal interpretation of results given here. Data sources need to be expanded to include canonical literary authors and, most important in my opinion, narratives related in everyday conversation. And finally, the inventory of thematic roles needs to be refined further.

REFERENCES

Dirven, Rene, and Gunter Radden. 1987. *Fillmore's Case Grammar: A Reader*. Heidelberg: J. Groos.

Fillmore, Charles. 1968. *The Case for Case. Universals in Linguistic Theory*, ed. by Emmon Bach and Robert Harms, 1-88. New York: Holt.

Fishkin, Shelley Fisher. 1993. *Was Huck Black? Mark Twain and African-American Voices*. New York: Oxford University Press.

Givón, Talmy. 1995. *Functionalism and Grammar*. Amsterdam: Benjamins.

Gruber, Jeffrey. 1965. *Studies in Lexical Relations*. Cambridge, MA: MIT dissertation.

Haegeman, Liliane. 1994. *Introduction to Government and Binding Theory*, 2nd ed. Oxford: Blackwell.

Halliday. M.A.K. 1973. "Linguistic Function and Literary Style: An Inquiry into the Language of William Golding's *The Inheritors*." *Approaches to Poetics*, ed. by Seymour Chatman. New York: Columbia University Press.

Mills, Carl. 1989. "Did Shakespeare Write 'Shall I die? Shall I fly?'" Paper presented at the 40th Southeastern Conference on Linguistics.

— 1990. *American Grammar: Sound, Form, and Meaning*. New York: Peter Lang.

— 1992a. "Discourse, Style, and Measurement: Narrative. *LACUS Forum* 18, 404-414.

— 1992b. "Quantitative Approaches to Discourse Structure: Syntax and Lexicon in Narrative." Paper presented at the 21st conference on New Ways of Analyzing Variation in Language.

— 1993a. "Felonious Verbs: Lexical and Syntactic Choice in Some Recent Crime Fiction."Paper presented at the 48th Southeastern Conference on Linguistics.

— 1993b. "Discourse, Style, and Measurement: More on Narrative." *LACUS Forum* 19, 172-80.

— 1994. "Was Aunt Polly Black: Linguistic Evidence and Fishkin's Huck." Paper presented at the 50th Southeastern Conference on Linguistics.

— 1995. "Verbal Accomplices: Auxiliaries, Style, and Discourse in English." *LACUS Forum* 22, 480-86.

Moseley, Christopher. 1994. *Colloquial Estonian: A Complete Language Course*. London: Routledge.

Nameri, Dorothy. 1995. "The Dramatic Value of the Verb in Character Creation: Macbeth (Shakespeare 1606)." *LACUS Forum* 22, 411-31.

O'Grady, William, Michael Dobrovolsky, and Mark Aronoff. 1997. *Contemporary Linguistics: An Introduction*, 3rd ed. New York: St. Martin's.

Traugott, Elizabeth Closs, and Mary Louise Pratt. 1980. *Linguistics for Students of Literature*. New York: Harcourt Brace Jovanovich.

Wierzbicka, Anna. 1980. *The Case for Surface Case*. Ann Arbor: Karoma.

CHANGES IN THE MENTAL REPRESENTATIONS OF EVENTS OVER TIME

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1. Introduction[1]

It has been long observed that the way we remember an event can change markedly over time. We may, for example, forget some minor facts, alter others, and reorder yet others. What is highly salient upon our first experience may, in the light of a fuller understanding of the situation, shift to a less central position. Likewise, it is clear that the nature of the mental representations, or mental models (Johnson-Laird, 1983), we construct may change in a similar fashion over time. Bartlett's (1932) work dealing with the constructive nature of memory is central in understanding this phenomenon, while empirical research supporting such changes is not difficult to find, dating back at least to the work of Bransford, Barclay, & Franks (1972). Similarly, the research reported by Chafe (1980; 1994) broaches this issue from the perspective of the role of consciousness in discourse analysis. The question, then, is not *whether* our mental representations of events change over time, but *how*.

In order to approach the problem systematically, we must first establish some notion of what is meant by a "mental model" or, more specific to the present research, what is meant by a "mental representation of a narrative". To approach this issue, we draw heavily on the work of Philip Johnson-Laird (e.g., 1970, 1983). Johnson-Laird suggests that

> ... It is possible that from the meanings of sentences in connected discourse, the listener implicitly sets up a much abbreviated and not especially linguistic model of the narrative, and that recall is very much an active reconstruction based on what remains of this model. Where the model is incomplete, material may even be unwittingly

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> invented to render the memory more meaningful or more plausible – a process which has its parallel in the initial construction of the model (Johnson-Laird, 1970, quoted in Johnson-Laird, 1983, p. 243).

A *constructive* theory of a discourse model differs importantly from the more familiar *interpretive* theory of meaning often associated with the understanding of sentences, especially as found in the generative literature. According to the latter, the full meaning of a sentence can be derived from the elements of the sentence itself, including both syntactic and lexical information. However, a constructive model for an extended discourse postulates that individuals actively construct interpretations that go beyond the information given within the sentences.

Johnson-Laird (1983, pp. 244ff) suggests that within a constructive theory of comprehension, especially of an extended set of sentences (i.e., a discourse in the most general sense, as all real language use appears to be), two distinct (logical, not temporal) steps are involved in the construction of a mental model. The first involves the formulation of a superficial representation, which we might postulate as a *propositional representation*, of each utterance which is relatively close to the surface form of the sentence. This first step has been argued for by researchers as diverse as Kintsch (1975, 1994), Kintsch and van Dijk (1978), and Jerry Fodor (1975).

The second step makes use of the propositional representations from the first step as a partial basis for the construction of a *mental model* of the discourse (narrative). Such a model, argues Johnson-Laird, has the same relational structure (i.e., the same temporal, spatial, organizational, etc. structure) as the events being modeled, but at the same time the model is only approximate, since the hearer must make active choices as to, for example, which elements, events, etc. are of higher significance or more salient, what causal relations might be inferred, what events might be expected to follow from the inferences drawn, and a host of other factors. Perhaps most important are the *contextual factors* associated with the situation, both linguistic and pragmatic, in which the discourse is executed.

Once a mental model is formulated, it must be stored in memory in some form, and presumably the form is relatively abstract, free of specific linguistic representations. This follows from the often observed phenomenon that it is difficult for us to recall verbatim what we have heard, while it is relatively easier to recall the gist of what we know of a story. Thus, recall appears to take as its input the mental model of the events and then recode these into a linguistic form. Thus, a bilingual might hear a story in one language and tell it to a friend in another.

Moreover, the mental model itself might be expected to change over time. What is salient, central, or important initially might change over time. Details which are not deemed relevant might be lost or reconstructed, events whose orderings are not crucial to the story might become rearranged, and a variety of other aspects of the model might change. Much evidence has been anecdotal about the way we recall events experienced in the distant or even recent past. We all know of cases of narrators whose stories "get better with time", just as we all know of those sad cases of people who want so desperately to tell a joke but just cannot do it because they fail to set up the punch line correctly. We have all heard of eyewitnesses who seem not to get the facts straight about some crucial events they have seen and are asked to testify about.

One of the real problems with understanding changes in mental models over time is that such changes might be influenced by a variety of factors, personality types, emotional state of the narrators, etc. What is needed is a controlled study in which several individuals who experience the same events can relate them at two different points over time. This paper is an attempt to address this question in terms of a controlled psycholinguistic study.

2. *The Experiment*

In order to examine just how an individual's perception of events changes over time, an experimental study was carried out in which participants individually observed the same events and provided three different oral narrative descriptions of those events. Participants in this study were 34 native English speakers, 17 males and 17 females.

Each participant was tested separately, and each had three tasks. First, each participant watched a short TV clip, the stimulus material, and provided an on-line, play-by-play description of what was going on (the "on-line" condition). Next, after a short distractor task, the participant provided an oral description of the same events, this time from memory (the "immediate recall" condition). Finally, after a two-week period, each participant returned to our lab and provided a third oral description of what had taken place, again from memory (the "delayed recall" condition). Each narrative was taped for future analysis. Participants were asked to provide as much information as they could about the events they had seen, such that an individual who had not seen the clip could have a clear and unambiguous idea of what was going on from listening to the tape. Each taped description was later transcribed in conventional orthography (but without editing), and then coded for detailed analysis.

Clearly, one expects some dramatic differences in both form and content between an on-line and a recall description. For example, in an on-line description, the narrator has no idea of the overall structure of what is unfolding, nor of what events will come later. Consequently, the narrator has to make quick assessments of which are major and which are minor events, characters, and activities. Thus, in terms of the narrative model which is evolving as the narrator watches the events, one would expect constant reassessments, restructurings, and an updating and augmentation of the evolving model. However, once a participant has seen the complete clip, a fuller model of the entire set of events would then be available, and one which once established might be expected to change over time as it is recalled. For these reasons, in the present report only the immediate and delayed recall data are examined.

The stimulus material was a short (8 minute) excerpt from a children's TV series called *Wishbone*. The show features a little dog named Wishbone, children, and others engaged in various activities and adventures. Each episode also has a lesson or moral associated with it. The lesson from the segment used here might be characterized as "live up to your responsibilities" or "don't blame others for your own misadventures". Subjects were allowed to hear just the very first part of the clip in order to get a clear idea of what was going on, and then the sound was turned off. Thereafter, the participants were to provide their first on-line description.

The particular segment chosen for this study consisted of six basic episodes. The characters included two teenaged boys, two young girls, the mother of one of the boys, a neighbor woman, and Wishbone, the dog. One boy and girl are brother and sister. In brief, the story involved the mother leaving the children alone, with the instruction that the boys look after the girls. The boys, however, chose to go outside and play with their little remote-controlled car, leaving the girls and dog inside. While outside, a neighbor woman asks to play with the remote controlled car, and unfortunately runs it into a tree. Meanwhile inside the girls get into much mischief, having a tea party and spilling juice on the floor, jumping on furniture in the living room, and rolling toilet paper down the stairs. The dog attempts to get the boys' attention, but they ignore him. The mother then returns to find the mess inside and the girls hiding, blames the boys for leaving the girls unattended, and then blames the dog for the toilet paper mess. Finally, as the mother lectures the children, they realize that Wishbone was not to blame, that the boys neglected their responsibilities to keep an eye on the little girls, and that the girls made the mess.

An analysis of the contents of the clip was carried by several members of our research group independently and was based on a close reading of the clip, with each actual action and event included. The various analyses were then compared, reconciled, and finally assembled into one analysis that all members were comfortable with. The resulting analysis then served as an *episode template* against which we could analyze the narratives. We anticipated, of course, that many of the events in the episode template would likely not be mentioned, since many were quite ancillary to the story line. As we shall see below, this was precisely what did occur.

According to our analysis, there were six major episodes in the clip, each consisting of a series of several events. These are found in Table 1 (on the following page). Beside each episode number is the number of specific events within that episode. Episodes E3 and E4 can be conflated into a "macro-episode", which we might call ME1, "the girls make a mess", while episodes E5 and E6 together constitute a second macro-episode ME2 "mother sorts things out". Both of the macro-episodes are in fact abstractions of the sort Johnson-Laird discusses, since they do not occur factually in the clip. They are instead representations invoked by interpretation of the events.

The overall structure of the story can now be represented as a hierarchical structure as in Figure 1, where each macro-episode (ME) is made up of one or more episodes (E), and where under each episode is an indication of the number of events within that episode.

Table 1. Episode Template

Episode	Number of Events	Description
E1	13	Mother leaves boys to look after the girls.
E2	45	The boys, neighbor, and Wishbone play outside with a remote controlled toy car and wreck it
E3	30	The girls play inside, spill juice and jump on furniture
E4	21	The girls go upstairs, roll toilet tissue down stairs
E5	24	Mother returns to find a mess and the girls hiding
E6	38	Mother lectures the children and Wishbone, then the children admit their errors, and Wishbone is exonerated.

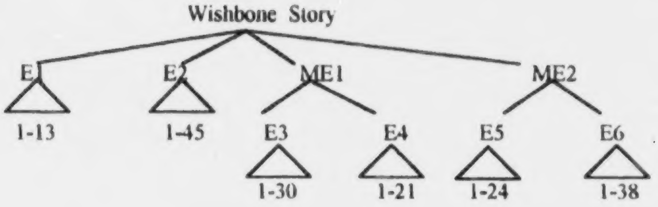

Figure 1. Episode Structure of the Wishbone Story

It is important to note that the order of episodes is iconic with the order of events in the film clip. However, once we abstract ME1 ("the girls make a mess"), the two internal episodes E3 and E4 could have been in either order without destroying the overall macro-episode. This is not the case with E5 and E6, however, since the mother must find the mess before she sorts things out. Although E2 and ME1 are ordered chronologically as in Figure 1, they might be assumed to take place simultaneously, since while the boys are outside with the car, the girls are at the same time inside making a mess. We will see below that these observations are in fact relevant to the sorts of mental models constructed by our narrators.

In order to construct a profile of the major episodes and events mentioned by our participants, we first determined for each narrative (immediate and delayed) whether or not each event in our episode template was mentioned. We then assembled the set of events mentioned by 70% of our participants. This figure is of course arbitrary, but we wished to determine the major "hits" by our subjects as a group in order to establish an overall profile for the participants.

We were interested in three distinct issues in doing this analysis. First, we wanted to establish a general profile of the main events of the story based on a criterion of common mention across subjects. Second, we wanted to examine how the profiles changed over time. Third, we wanted to assess the relevance of Johnson-Laird's mental model proposal to an understanding of how episodic memory changes. It is to a discussion of these results that we now turn.

3. Results

The results of the tabulation of events mentioned by 70% of our participants, along with the specific events named, are found in Table 2. The events mentioned exclusively by females or by males are indicated with F and M respectively. Events E2.30, E2.31, and E3.8 are also included here since these constitute cases in which males and females differed in what was reported.

Table 2. Events mentioned by 70% or more participants

			Frequency of Mention	
Episode	**Event**	**Description of the Event**	**Immediate**	**Delayed**
E1	4	the boys talk to the girls	29	31
	6	the boys exit	33	34
E2	3	the boys play with a remote-controlled car	32	34
	10	neighbor woman joins the boys	29	29
	12	neighbor speaks to the boys	24	0
	18	neighbor operates the car	28	13 (F)[a]
	(30)	Wishbone chases the car	12 (M)	0
	(31)	neighbor loses control of the car	13 (F)	0
	38	the car crashes into a tree	32	31
E3	5	girls spill tea	30	15 (M)
	(8)	girls jump up and down on an armchair	12 (F)	0
E4	1	girls go upstairs	29	0
	6	one girl lets toilet paper roll down stairs	29	0
	7	other girl rolls toilet paper down stairs	24	0
E5	2	the living room is covered with toilet paper	32	24
	5	Mother enters the house	34	32
E6	2	all children are seated in the living room	31	16(M)
	4	Mother gestures and lectures children	29	27

[a] events in parentheses do not achieve the 70% criterion across all subjects, but are mentioned only by either males (M) or females (F)

From these results, several facts are immediately obvious.[2] First, although the dog Wishbone is present throughout virtually the entire show and actually participates in or observes much of the action, he is seldom mentioned in the most salient events. Rather, they focus their attention primarily on the activities of the humans, and while Wishbone is initially blamed for all the mess that the girls have made in the house, this fact is also seldom mentioned.

Turning to matters of differences in the profiles, we must first recall that the delayed narratives were provided two weeks after the initial ones. It is expected that some of the details will be missed or rearranged in the second narrative, and this is exactly what happened. Several events which were mentioned by most participants in the immediate narratives were never mentioned in the delayed narratives. These included the neighbor speaking to the boys outside, the girls going upstairs, and the toilet paper mess made by the girls inside. In the delayed narratives, some participants collapsed these events into more general statements such as "the girls made a mess with toilet paper" or "the girls threw toilet paper all over the house", while others offered even more truncated versions such as "the girls made a big mess in the house".,What we find here is a kind of event summary, corresponding to our "macro-episodes". But while this sort of summary statement is quite common in the delayed narratives, it occurs virtually not at all in the immediate recall narratives.

In the delayed narratives the spilled tea and the toilet paper events (E3 and E4) are often reversed in order, and this is not surprising since the relative order of the events does not contribute significantly to the story. However, such a reversal does not occur in the immediate narratives, in spite of the lack of significance of the ordering. Moreover, in the delayed narratives, even the correct order of the toy car episode (E2) before the scenes where the girls make a mess (ME1) is often reversed.

Overall, the immediate narratives were far more detailed and generally much longer than the delayed ones. In the immediate recall condition, considerable effort was made by the narrators to relate the events in as much detail as possible, often producing a series of ordered events without much of a sense of telling a story. In addition, the descriptions tend to be rich in adjectives and full of evaluative and interpretive comments such as "the girls were in major trouble" or "the mother was horrified at the shock of the mess" and "so the dog ... decided to go back in the house to see what the girls were doing".

In the delayed narratives, however, while there was less detail, and while some of the events were reordered, deleted, or confused, there was nevertheless a consistent attempt to tell a story. Thus, for example, in the delayed narratives we often find initial opening statements first specifying the characters (two boys, two girls, a dog, etc.) and also explaining what the story was "about". For example, one subject opened his delayed narrative with "OK let's see... it's a story about what happened when you leave children alone". Sometimes, we also find a short summary of the entire film, after which the main episodes of the story are then presented in a macro-episodic fashion, with highlights from the car episode, the girls' messing up the house, and the mother's return and lecturing the children.

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[2] Some events were mentioned predominately by males or predominately by females. Chiefly females, for example, mentioned in the delayed condition that the neighbor woman also operated the remote-controlled car, and mainly females mentioned that the same woman, the neighbor, caused the crash of the toy car. Similarly, it was males who typically reported that the dog chased the toy car and, in the delayed condition, that the girls spilled the tea. However, other than in these few instances, which may in fact be purely fortuitous, males and females did not differ much at all in their narratives.

In summary, the results suggest certain systematic changes in the mental representations and offer clues at to how those representations evolve and are restructured over time. It is to a discussion of these issues, and their relation to the proposals associated with Johnson-Laird's notion of mental models, that we now turn.

4. Discussion and Conclusions

We first recall that Johnson-Laird's constructive model of language comprehension consists of two steps, a propositional representation followed by a synthesis of these into the mental model. In our data, the first step, that of proposition representation, is mapped by the specific events within each episode. The second step, involving the organization of those events into a more complex structure, the mental model, is represented here by the episode analysis wherein each set of related events is grouped together, and related episodes are also grouped into macro-episodes.

The group mental models, which are composite profiles for the pooled data for the immediate and delayed conditions, are implicit in the data in Table 2. Accordingly, a composite immediate and a composite delayed model can be assembled, as in Figures 2 and 3.

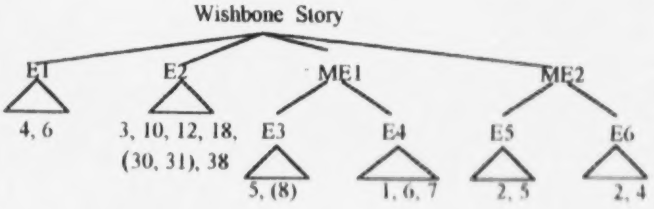

Figure 2. Composite Immediate Recall Model

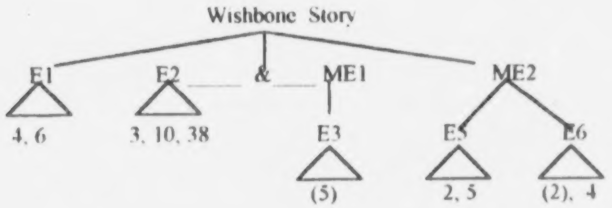

Figure 3. Composite Delayed Recall Model

To a certain extent, the composite representation in Figure 3 is inadequate since, while E4 is not mentioned by our target criterion number of participants, ME1 is frequently mentioned as "the girls made a mess", etc. Similarly, the iconic order of E2 and ME1, represented in Figure 2, is not necessarily iconic in Figure 3, thus the use of the (arbitrary) notation in Figure 3 of " ___&____ ", which represents the fact that E2 and ME1 are not ordered, with some subjects mentioning E2 first and others mentioning ME1 (E4) first. Interestingly, in the delayed recall we do not find a loss in the ordering of E5 and E6, primarily because there is a causal relationship between these two episodes. However, some participants also collapse E5 and E6 into a single macro-episode (ME2) through comments such as "Mother comes home and straightens things out."

In summary, then, we find that the immediate recall model is rather more of a direct re-telling of the events and episodes, with relatively little or no abstractions for the macro-events, but with considerable detail in the descriptions, while the delayed recall is more like a reconstruction of the major episode and events of the clip, told in a more story-like form, with loss of some detail, reorganization, etc.

The two composite models reveal useful insights into Johnson-Laird's proposals. His proposal that the resulting mental model has the same relational (temporal, spatial, organizational) structure as the events being experienced seems to be fairly well borne out in the composite immediate recall model. In particular the detail and ordering of episodes within the model closely map the episode template. However, this is not the case in the delayed composite model, where we find ordering changes, more mentions of macro-episodes, and far less detail. Thus, it appears that once the discourse model is abstracted in some form and deposited in long term memory, the model is itself susceptible to change in interesting and important ways, including changes which do not crucially affect the story structure or causal relations as well as changes which blur detail and create summary statements. The mental model view of comprehension and representation therefore proves itself a highly useful framework to model narrative discourse structure, although as the results of the present study indicate, there is a great deal more to be learned about such representations, especially in terms of their evolution over time.

As a pleasant final note to our study, I would like to mention the following. The characters in the Wishbone segment were racially varied. The mother, one teenage boy, and the lady in the yard were Caucasian. The second teenage boy was black as was his little sister, while the other little girl was Asian. In their descriptions of the events, however, only one participant in the 68 narratives mentioned the races of the characters, either in passing or as a means of identifying the participants.

REFERENCES

Bartlett, Frederic C. 1932. *Remembering*. Cambridge: Cambridge University Press.

Bransford, John D; J.R. Barclay; and J. J. Franks.1972. "Semantic Memory: a Constructive Versus Interpretive Approach." *Cognitive Psychology* 3.193-209.

Chafe, Wallace (ed.). 1980. *The Pear Stories: Cognitive, Cultural, and Linguistic Aspects of Narrative Production*. Norwood, NJ: Ablex.

— 1994. *Discourse, Consciousness and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing*. Chicago: University of Chicago Press.

Fodor, Jerry A. 1975. *The Language of Thought*. Hassocks, Sussex: Harvester Press.

Johnson-Laird, Philip N. 1983. *Mental Models*. Cambridge, MA: Harvard University Press.

— 1970. "The Perception and Memory of Sentences." In *New Horizons in Linguistics,* ed. by John Lyons, 261-70. Harmondsworth, Middlesex: Penguin.

Kintsch, Walter. 1974. *The Representation of Meaning in Memory*. Hillsdale, NJ: Erlbaum.

— 1994. "The Psychology of Discourse Processing." In: *Handbook of Psycholinguistics,* ed. by Morton Ann Gernsbacher 721-39. New York: Academic Press.

— ; and Teun A. van Dijk (1978). "Towards a Model of Text Comprehension and Reproduction." *Psychological Review* 85.363-94.

DISCOURSE FUNCTIONS AS A SIGNIFICANT VARIABLE IN *DO*-SUPPORT ALTERNATION IN SHAKESPEARE'S ENGLISH

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1. Introduction

When the replacement of one major syntactic pattern by another occurs in the history of a language, a variety of questions arises about linguistic events associated with it. One of the most interesting of these questions is whether, during the period when both old and new syntactic patterns coexist for speakers, any functional use is made of the syntactic alternates for organizing discourse or achieving particular rhetorical effects in text.

The historical change in English known as the development of *do*-support provides a clear example of a case in which two competing patterns existed side by side and were available to speakers for a period of time. In addition, we have, for this example, particularly good data for investigating discourse uses of the alternates because of the richness of the literary texts from the period of major activity of the change. The study reported in this paper concerns the extent of context-driven use of the two syntactic alternates available during the innovation of *do*-support, and the implications of this information for a linguistic description of the variables associated with the syntactic change.

1.1 Preliminaries. Do-support refers to the introduction into English of *do* as an auxiliary verb. In the course of this change, *do* developed a role parallel to that of the modals (*can, will,* etc.) and the true auxiliaries (*have, be*) in the formation of interrogative and negative clauses. When an interrogative or negative proposition lacked a modal or a true auxiliary, *do* (in addition to the other roles it played in the language) began to be introduced as an auxiliary verb to stand before the NP subject in interrogatives or carry the negation marker in negatives. The innovation replaced an older syntactic pattern, in which the main verb of an auxiliary-less clause stood ahead of the NP subject in interrogatives and was associated with the negation marker in negatives. Example 1 below shows an old-pattern interrogative and 2 a *do*-supported interrogative; 3 and 4 show the same contrast for negatives.

1 What meane you by that saying?
(*Two Gentlemen of Verona* 27:2190)[1]
2 what doe you meane by this hanting of me?
(*Othello* 953:2270)

3 Vneuen is the course, I like it not.
(*Romeo & Juliet* 403:2180)
4 I doe not like the tower of any place:
(*Richard III* 226:1490)

Early evidence of the introduction of *do*-support can be found in Middle English, but the period of its most rapid development was the short span of years between 1500 and 1700 (Crystal 1988). Shakespeare's plays, dating from roughly a ten-year period on either side of 1600, provide us with data from the very middle of this significant 200-year span, and an unparalleled resource of brilliant, purposeful language. Six of them are used as the texts upon which the study reported in this paper and two previous, related studies (Stanford & Tsiang-Starcevic 1996 and Tsiang-Starcevic & Stanford 1996) are based.

1.2 Previous Studies. The development of *do*-support has been studied extensively over the past hundred years, and a complex set of variables has been identified as significant in its use and diffusion. These range from lexical verb and syntactic structure through other features of the syntactic context, social variables, and idiomatic usage (see further in Barber 1976, Engblom 1938, Ellegard 1953, Kroch 1989, Stein 1990).

Stanford & Tsiang-Starcevic (1996) report on a multivariate study of the interaction of lexical, syntactic, and social variables associated with the diffusion of *do*-support, and suggest in their closing discussion that future research on this topic should not ignore the discourse context in which the alternate structures occur. Inspection of texts during the collection of their corpus had indicated that various contextual features might sometimes play a role in the choice that a particular speaker in a specific situation made between a structure with *do*-support and one without, and that selection of one or the other might be purposeful and aimed at serving a discourse or a dramatic function. Stanford & Tsiang-Starcevic's immediate concern was that such contextually-driven selection of a syntactic alternate might muddy the quantitative picture of *do* usage.

In a subsequent paper, Tsiang-Starcevic & Stanford (1996) report on a closer study of these discourse phenomena which they believed resulted in context-driven usage of the *do* syntactic alternates. They identified a number of examples of different situations in which the selection of one syntactic alternate or the other appeared to be influenced by contextual considerations. Examples 5 and 6 below show only two of the characteristic types they found. The passage in 5 illustrates the rhetorical use of parallel (non-*do)* forms to provide unity to a passage from *Two Gentlemen of Verona* in which the rather silly Thurio is demanding of all of his friends how they think his suit of love to Siluia will fare. Example 6 illustrates the interaction of two characters in *Romeo and Juliet* through word play based on the verb *move* and contrasting *do* use. This is the capping couplet of an early courting scene in which Romeo and Juliet have talked themselves into a kiss through a long punning passage. The relevant forms in these examples and others are italicised to facilitate location; the number of intervening lines between the tokens of interest is indicated here and throughout.

5 THURIO Sir Protheus, *what saies Siluia to my suit*?
[6 lines (PROTHEUS, THURIO, and JULIA), in asides]
What saies she to my face?
[6 lines, as above]
How likes she my discourse?
[3 lines, as above]
What sayes she to my valour?
[2 lines, as above]
What saies she to my birth?
[2 lines, as above]
Considers she my Possessions?
[4 lines, as above]
(*Two Gent* 24:1960)

6 JULIET *Saints do not moue*, thogh grant for praiers sake.
ROMEO *Then moue not* while my praiers effect I take.
[He kisses her].
(*R&J* 386:670)

In this initial (1996) study of discourse effects, Tsiang-Starcevic & Stanford cast a wide net for passages for which they believed a claim of context-driven selection of one or the other *do* alternate might be supported. Their definition of potential conditioning factors included,

> ... those [factors] related to effective textual/conversational organization and presentation, including the usage of stylistic devices such as repetition, parallelism, and contrast for particular discourse effects such as cohesion and emphasis. (p 70)

In the six plays examined, Tsiang-Starcevic & Stanford found 92 passages, containing 241 tokens, in which contextual conditioning could be argued to have played a role in *do*-support usage. This evidence of an apparently robust role for contextual determinants gave real importance to the question of whether this factor might affect the results of more strictly quantitative studies. The study reported below addresses this question, investigating both the scope of the problem and the impact. Specifically, it investigates the questions of what proportion of *do* alternates may be claimed, conservatively, to be context-driven uses, and whether the context-driven set appears to be different in any way from the parent corpus and thus a significant, unaccounted-for variable in the picture of *do*-support development.

2. *Methodology*

The approach to these questions was to identify, on principled and conservative grounds, a context-driven sub-corpus from Stanford & Tsiang-Starcevic's original complete set of tokens reflecting the use of *do*-support in the six plays, and to compare the characteristics of this sub-corpus with the larger set.

2.1 The Corpora. The tokens of the context-driven sub-corpus are a subset of the large corpus used both in the multivariate analysis of Stanford & Tsiang-Starcevic (1996) and the initial study of context of Tsiang-Starcevic & Stanford (1996). The large corpus will hereafter be referred to as the *main corpus*.

The main corpus was drawn from the six Shakespeare plays: *All's Well that Ends Well, Henry V, Romeo and Juliet, Othello, Richard III,* and *Two Gentlemen of Verona*. It consists of all interrogative and negative clauses which, in the absence of other auxiliaries, could show *do*-support. The relevant syntactic constructions are negative and affirmative wh- and yes/no questions, negative imperatives, and negative declaratives. The main corpus contains 965 tokens, each with its associated values for the following fourteen lexical, syntactic, and sociolinguistic variables: *do* usage, play, syntactic structure, character (speaker), speaker's gender and social class, hearer's gender and social class, genders and social classes of speaker/hearer dyads, lexical verb, syntactic subject and complement types, use of formal and familiar second-person pronouns. (See Stanford and Tsiang-Starcevic 1996 for a complete description of the main corpus and a full discussion of the variables and their interaction.) From this main corpus, the *context-driven* corpus was extracted, consisting of tokens (with the descriptive variables noted above) in which the selection of *do* or non-*do* appeared to be arguably motivated by discourse or rhetorical functions.

2.2 Selection of Context-driven Tokens. The selection of the context-driven tokens was made on very conservative grounds. While recognizing that such selectivity would probably result in an under-estimation of the impact of context upon the picture of *do* usage, we chose to restrict our identification to those tokens occurring in passages exhibiting one or more of five frequently-found and obvious discourse functions. These functions, which are discussed below in greater detail, with examples, are: scene or passage unification; scene or passage closure, often emphatic; word play – characteristically the 'turn' with which one character caps the final line of another (or even his/her own line) at the end of a dialogue; character or scene development; and emphatic questioning – typically volleys of questions fired at one character by another.

Further constraints on selection were that the tokens must occur in fairly close proximity and within a speech, dialogue, or very short mini-scene (e.g., one of the clowning passages which usually consist of no more than 10 lines around a single idea). These bases for selection yielded a conservative set of 53 passages, composed of 153 tokens, for analysis.

It is interesting to note that neither the old nor the new syntactic pattern was strongly associated with contextually-motivated text, but rather the interplay of the two. The discourse effects were achieved by classical rhetorical means: repetition, parallelism, and contrast of the *do* alternates, in many cases supported by other similarities of structure or lexis. These included using the same main verb, a semantically related verb, or a similar-sounding although semantically unrelated verb; changing the form class of a major lexical item between lines (e.g., *music, musician*); having similar or parallel grammatical subjects or objects; or being of the same syntactic type (e.g., imperative, wh- question, etc.). These characteristics, among others, provided additional evidence of the deliberate discourse structure role assigned to these tokens.

2.3 Explanation And Examples of The Discourse Functions. Following are fuller descriptions of the five discourse functions which were used to select the context-driven corpus, together with representative examples of each.

2.3.1 Passage Unity. The alternative *do*-support patterns are available to participate in the internal unification of a speech or a scene, largely by use of the rhetorical device of parallel or repeated forms. Many of the 16 passages of this type (54 tokens) are of high rhetorical style (see 7), but others are clown scenes (see 8). In example 7, King Harry is admonishing the spies whom he is shortly to hang. He is addressing not only the villains but also his court; his speech is elevated and he uses a series of old-pattern yes/no questions. The internal unification is, of course, further enhanced by his repeated answer of *Why so didst thou* to his own questions. Example 8 is one of the clown scenes between Capulet and Mountague servants in *Romeo and Juliet*. The unity is achieved by the repetition of interrogatives with *do*, and is supported by the use of affirmative *do* in other lines.

7 KING HARRY ...
Oh, how has thou with iealousie infected
The sweetnesse of affiance? *Shew men dutifull,*
Why so didst thou: *seeme they graue and learned*?
Why so didst thou. *Come they of Noble Family*?
Why so didst thou. *Seeme they religious*?
Why so didst thou. ...
(*Hen* 646:730)

8 ABRAM *Do you bite your thumbe at vs sir?*
SAMPSON I do bite my thumbe sir.
ABRAM *Do you bite your thumb at vs sir?*
SAMPSON (*to Gregorie*) Is the law on our side if I say I?
GREGORIE No.
SAMPSON (*to Abram*) No sir, *I do not bite my thumbe at you sir*, but I bite my thumbe sir.
GREGORIE (*to Abram*) *Do you quarell sir?*
(*R&J* 379:50)

2.3.2 Passage Closure. The old and new patterns are also used in the discourse role of closure, and the final boundary of a passage or scene may be marked with the rhetorical device of simple repetition of one structure. However, more often we find such a series with a final contrast, and such examples frequently carry strong final emphasis. Both examples 9 and 10 below are of this sort. In 9, Capulet is playing the heavy father with Juliet, who has refused to marry Paris (being already wed to Romeo). His final exit line to her uses two old patterns and a contrasting *do* form. Example 10 is from near the end of *All's Well that Ends Well*, and Diana's possession of the ring in question is significant to the plot. Her final use of an old pattern after a series of *do* forms ends the riddling exchange very firmly. In the corpus there are nine passages of this sort, with 28 tokens.

9 CAPULET
Hang thee young baggage, disobedient wretch,
I tell thee what, get thee to Church a Thursday,
Or neuer after looke me in the face.
Speake not, replie not, do not answer me.
(*R&J* 402:2090)

10 KING ...This Ring you say was yours.
DIANA I my good Lord.
KING *Where did you buy it?* Or who gaue it you?
DIANA It was not giuen me, nor *I did not buy it.*
KING Who lent it you?
DIANA It was not lent me neither.
KING *Where did you finde it then?*
DIANA *I found it not.* (AW 997:2790)

2.3.3 Word Play. Shakespeare's language is full of word play based on the 'turn' of a line, with one character capping the previous line of another or, in monologue, capping his/her own line or phrase. These 'turns' often occur as couplets, or in a single line, but may go on for several interchanges. (Many of these latter examples meet Siluia's description of a verbal passage at arms between Valentine and Thurio (*Two Gentlemen of Verona* 10:656): "A fine volley of words, gentlemen, and quickly shot off.") *Do* use may be repeated or contrasted; there is often an associated pun, as in example 11 where the two romantic but combative young men are playing with the notion of being 'over-bootes in love', and Valentine is subtly telling Protheus that his wooing is not going to prosper. In example 12, the repeated old pattern is supported, and the point made, by the change of lexical subcategory from *Musicke* to *Musitian*. (Unhappy Julia, dressed as a boy, is having to watch her beloved woo another with lute and song.) Seventeen passages, 36 tokens, were of this type.

11 PROTHEUS Ouer the Bootes? nay *giue me not the Boots.*
VALENTINE No, I will not; for *it boots thee not.*
(*Two Gent* 3:20)

12 HOST How now? are you sadder then you were before;
How doe you, man? *the Musicke likes you not.*
JULIA You mistake: *the Musitian likes me not.*
(*Two Gent* 20:1610)

2.3.4 Character Or Scene Development. Manipulation of the *do* alternates may also be observed to reveal the state of mind of a character or to develop or clarify the dramatic action in a scene. For example, in 13 Brabantio, Desdemona's father, who has been driven into a frenzy by Iago's news of her elopement with Othello, is frantically ordering, questioning, and organizing a search party. Note the rapid switching from *do* to non-*do* usages as Brabantio dithers about what to do and issues questions and orders to several different auditors; this switching clearly reveals his distraught state of mind. It is not until the final two lines of the speech, when he is appealing to heaven, that he ends his speech with two old patterns. The corpus contains five passages, with 19 tokens, of this sort.

13 BRABANTIO
... now, Roderigo,
Where didst thou see her; O vnhappy girle,
With the Moore saist thou? who would be a father?
How didst thou know twas she? O she deceiues me
Past thought: *what said she to you*?
(*to seruants*) get moe tapers,
Raise all my kindred, [*Exit one or more*]
(*To Roderigo*) are they married *thinke you*?
...
O heauen, *how got she out*? O treason of the blood;

Fathers, *from hence trust not your Daughters mindes*, ...
(*Oth* 930:170)

2.4.5. Question Sets. There are six passages, with 16 tokens, in which emphasis or focus is conveyed by closely contiguous repetitions of a question, either by one or several characters. Usually such question sets repeat the same *do* alternate, and sometimes use the same or a very similar clause. Of the examples given, 14 is a simple repetition of an excited question, raising the hue and cry for the murderer Tybalt at the beginning of the bloodshed in *Romeo and Juliet*. In example 15, Iago draws the listener into believing in Desdemona's immodest behaviour through the gossip's technique of 'didn't you see' questions. Example 16 is one of the great comic scenes of the corpus: Launce is scolding Crab, his dog, for serious misbehaviour on a visit to Siluia, and uses repeated questions which explain to us just what it is that Crab has done.

14 CITIZEN [OF THE WATCH]
Which way ran he that kild Mercutio?
Tybalt that murtherer, *which way ran he?*
(*R&J* 396:1520)

15 IAGO
... if she had beene blest, she would neuer have lou'd the Moore. Blest pudding. *Didst thou not see her paddle with the palme of his hand Didst not marke that?*
(*Oth* 939:930)

16 LAUNCE ...nay, I remember the tricke you seru'd me, when I tooke my leaue of Madam Siluia: *did not I bid thee still marke me*, and doe as I do; *when did'st thou see me heaue vp my leg*, and make water against a Gentlewomans farthingale? *did'st thou euer see me doe such a tricke?*
(*Two Gent* 22:1780)

3. The Impact of Context

Given a defensible corpus of context-driven tokens, selected conservatively on the bases outlined above, we can now probe for information about the two questions with which we began: what is the scope of the context-driven phenomenon, i.e., what proportion of the main corpus appears to be involved in language which has specific discourse or rhetorical functions; and, in what measurable ways is the context-driven corpus different from the main corpus. We will look at simple frequency distributions of tokens and the correlation of certain variables with *do* (our primary focus of interest) for data about these matters.

3.1 Scope. The main corpus contains 965 tokens, and the context-driven corpus 153. Thus, even with extremely conservative selection procedures, context-driven tokens compose almost 16% of the pool of all possible *do*-support tokens in the six plays. This figure is large enough to support Stanford & Tsiang-Starcevic's 1996 contention that context should not be ignored when describing the variables that are associated with the use and diffusion of the new syntactic pattern.

3.2 Frequency Distribution of Selected Variables in The Corpora. The statistical analysis of the main corpus in Stanford & Tsiang-Starcevic 1996 indicated that the lexical main verb, the syntactic structure of the token, and the play in which the token occurred were among the most important variables in the prediction of *do* usage. It is thus important to determine whether the token set in the context-driven corpus has the same pattern of values for these variables as does the token set in the main corpus. In other words, how much does the specialized context-driven corpus look like its large parent corpus with regard to these major variables?

Following is a frequency comparison of the values from the play, structure, and verb variables in the two corpora. The question asked in each case is: is the same percentage of the main corpus accounted for by context-driven tokens for each of the values within a variable (e.g., for each play within the play variable)? The implication behind the question is: does context-driven language affect variable values evenly for each of these three variables in the two corpora?

3.2.1 The Play Variable. In both corpora, the six plays differ (not surprisingly) in the actual number of tokens involved in *do*-support. More importantly, however, these differences are not parallel: across the plays the proportion of tokens that is context-driven differs. Table 1 (on the following page) shows for each play the number of tokens in the main and context-driven corpora, and the relative proportions (shown as a percentage of the main corpus that is accounted for by context-driven tokens). This percentage provides a rough measure of the impact of context on the main corpus. Inspection shows that the impact can be very low (8.8% in *Richard III*) or quite high (up to as much as a quarter of the total in *Henry V*). This difference in frequency distribution between the two corpora suggests that a correlation of *do* usage with play based on the main corpus would be skewed.

In passing, the very high percentage of context-driven tokens in *Henry V* is particularly interesting when we look at the number of the speakers in each play providing those tokens. In all of the plays except *Henry V*, between 7 and 10 characters produce the context-driven tokens; in *Henry V*, with the exception of two tokens delivered by Pistoll, they are all from King Harry. Harry is a highly rhetorical (not to say inspirational) speaker, and is required to be so by his role and the situations in which he finds himself.

Table 1. Corpora Tokens by Play

PLAY	MAIN	CD	%CD OF MAIN
AW	150	19	(12.7%)
Henry	113	28	(24.8%)
R&J	163	27	(16.6%)
Oth	204	31	(15.2%)
R III	193	17	(8.8%)
Two Gent	142	31	(21.8%)

3.2.2 The Structure Variable. The impact of context-driven language on the frequency distribution of syntactic structure types is far more equitable, although it is interesting to note that the four interrogative structures (affirmative wh-, affirmative yes/no, negative wh-, and negative yes/no) rank highest in terms of the percentage of main corpus tokens that are accounted for by context-driven language. This may be an epiphenomenon of the rhetorical use of questions (and hence of the inclusion of question sets as a discourse type in the selection of the corpus). Table 2 shows the number of tokens per structure type in the main and context-driven corpora, and the percentage of the main that are context-driven. With the exception of the negative wh-question structure (25% context-driven, but really too few in number for this figure to mean much), the other structure types vary between 10.4% and 19.5%, and four of them are bunched between 15.3% and 19.5%. The fact that negative imperatives are somewhat lower than the other four is probably a reflection of the infrequency of imperatives in sets of parallel or repeated structures. We can conclude that except for a tendency to utilise interrogatives, context-driven language does not make any particular distinction among any of the frequent available structure types.

Table 2. Corpora Tokens by Structure Type

STRUCTURE	MAIN	CD	%CD OF MAIN
aff wh-	259	44	(17%)
aff y/n	167	31	(18.6%)
neg dec	313	48	(15.3%)
neg imp	173	18	(10.4%)
neg wh-	12	3	(25%)
neg y/n	41	8	(19.5%)

3.2.3. The Verb Variable. The lexical verb emerged from Stanford & Tsiang-Starcevic's 1996 statistical analysis of the main corpus as the most significant variable for predicting *do*-support. Consequently, it is particularly important to look at the impact of discourse functions on frequencies of occurrence in the verb set. In the main corpus, 17 lexical verbs appear with a frequency of 10 or more uses. Data for them are analyzed separately, and all other verbs are grouped together as a 'minor' category.

All of the major verbs from the main corpus are found in the context-driven corpus with the exception of *fear*. We can thus show, for the remaining 16 major verbs and the minor class, how deeply each is involved in context-driven language. If we again ask what portion of the main corpus tokens for individual major verbs are accounted for by context-driven tokens, we find an enormous variation, from 5.0% (*mean*) to 40.0% (*love*). Table 3 shows this information. For simplicity of display the verbs are divided into three arbitrary groups of low context-driven impact (0-10% of the main corpus tokens are context-driven uses), medium context-driven impact (11-20%), and high context-driven impact (21-40%). The sets of numbers given beside each verb show the number of tokens of the verb in the main corpus, the number in the context-driven corpus, and the percent of main-corpus tokens that are context-driven. It is worth noting here that four of the main corpus verbs (*be, have, let,* and *do*) never take *do*-support, and are thus not able to participate in any rhetorical construction which uses the technique of alternation.

While the data in Table 3 must be interpreted in the knowledge that we are dealing with very small numbers of tokens, they nonetheless indicate again the importance of considering the impact of context on language material selected to participate in quantitative analyses.

Table 3. Corpora Tokens by Verb

LOW IMPACT	MEDIUM IMPACT	HIGH IMPACT
mean (20,1,5.0)	*have* (54,6,11.1)	*let* (23,5,21.7)
be (18,1,5.5)	MINORS (471,69,14.6)	*doubt*(13,3,23.1)
do (32,2,6.2)	*know* (97,15,15.46)	*hear* (12,3,25.0)
care (11,1,9.1)	*come* (19,3,15.8)	*see* (23.7,30.4)
	think (46.8.17.4)	*look* (12,4,33.3)
	like (17,3,17.6)	*love* (20,8,40.0)
	say (67,7,20.8)	

3.3 Do Usage in The Context-driven Corpus. Interestingly enough, in terms of the percentages of *do* and non-*do* usage, the two corpora are almost identical. Each contains around 29% *do* and 71% non-*do*. This is a rather surprising finding, since it might have been expected that one or the other alternate would have more rhetorical force. However, the occurrence of the new pattern is no greater in the context-driven language than in the unmarked variety, indicating that use of the old or the new patterns is not exclusively, or even preferentially, associated with rhetorical or discourse devices, at least not with those of the sort measured here. This is not to say, as we will see below, that the pattern of *do* usage within variables that are importantly implicated in *do*-support is always equivalent in the two corpora.

3.4 Do X Variable Correlation in The Corpora. When we look at the correlation of individual variable values with *do* use in the two corpora, we see more evidence that context-driven tokens appear to skew the detailed picture of the larger corpus. We look at this correlation in the same three major variables of play, structure, and lexical verb.

3.4.1 Do X Play. If we compare the correlations of *do* usage by play in each corpus, we see two quite different patterns. A chi-square test of the data from the context-driven corpus shows *All's Well that Ends Well* and *Henry V* to be significantly different from the remainder of the plays. *All's Well* is significantly innovating, actually using more *do*-support than non-*do* forms. (Recall that both the context-driven and the main corpora show only 29% *do* use.) *Henry V* is significantly conservative, using almost no *do*-support. This reflects again the strong speaker effect from *Henry* in the context-driven data, since 27 or the 29 tokens from this play are produced by King Harry, who is a highly conservative user of *do*.

In the main corpus, however, the picture of *do* usage in the various plays is quite different. Here, *Othello* is significantly innovating and *Two Gentlemen of Verona* is significantly conservative. *All's Well* and *Henry V*, the significantly different extremes in the context-driven corpus, are not significantly different here from the main corpus.

3.4.2 Do X Structure. When the use of *do* by syntactic structure is correlated for each corpus, the picture is quite different from the state of affairs with the play variable. For the structure variable, both corpora show the same pattern of *do* use, with affirmative and negative yes/no questions being significantly innovating and negative declarative statements being significantly conservative in each case.

DO x VERB. In a corpus the size of the context-driven one, the token count for each individual verb is, in most cases, too low to correlate statistically with use of *do*. However, observation of two verbs that have a high frequency of occurrence in the context-driven corpus, *know* (15 tokens) and *say* (14 tokens) shows the former to be innovative, with almost 50% *do* usage, and the latter to be conservative, with no *do* tokens at all. (*Say* is particularly interesting, because in the context-driven corpus it occurs only in the fairly fixed rhetorical phrases of '*what says/said/saist ...?*' or '*saist thou ...?*')

In the main corpus, *say* is still quite conservative (12%) but *know* occurs only about one-third of the time with *do*. Even these data based on low token counts suggest what we have already seen: that the main corpus harbours a sub-corpus that has identifiably different and context-driven characteristics, and that quantitative studies must account for, or control for, this sort of influence.

4. Discussion

The results of the probe of simple frequency distributions and correlations of selected variables with *do* in the context-driven corpus and in its parent main corpus indicate that the two corpora are significantly different in at least some dimensions. This, in turn, suggests two further points. The first is that it would be useful to have a more complete comparison of the characteristics of these two corpora, using a wide range of descriptive statistical measures, so as to have a clearer picture of the impact of context-driven tokens on the larger set of data. The second is that further quantitative analyses of the main corpus, or any extension of it, or of another similar large corpus for comparison purposes (all of which seem desirable for clarifying the picture of the use and diffusion of *do*-support) will need to take account in some way of the impact of the context-driven subset of tokens if a misleading result is not to emerge.

Furthermore, the results of the *do* x variable correlations support the hypothesis that context will affect *do* usage. While discourse context is not a significant influence on the usage of *do* in particular sentence types, the employment of *do* for discourse roles does vary according to lexical verb and play. This indicates that patterns of *do* usage reflect the type of discourse in which the characters are engaged. For example, scenes in which characters question one another would favour the old pattern, since questions may be phrased using the '*what say*' formula, while punning scenes may favour the old or the new pattern as characters select the option that gives them the most effective line.

However, the identification of context-driven material on a principled basis which is sufficiently rigorous to be replicable across a range of texts remains a difficulty. The taxonomy used in the study reported above grew out of the specific texts studied, and a great deal more work will be required to develop a clear definition and a metric for selecting tokens whose syntactic and lexical characteristics are demonstrably motivated by discourse or rhetorical considerations. Nevertheless, the accomplishment of this task would significantly advance the study of the development of *do*-support, and indeed, of any syntactic change.

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NOTE

1 Citations for line location are from the primary text, and refer to page number and preceding main line (lines are numbered by tens).

PRIMARY TEXT

William Shakespeare: The Complete Works (Original Spelling Edition). Stanley Wells and Gary Taylor, general eds. Oxford: Clarendon, 1986.

REFERENCES

Barber, Charles. 1976 *Early Modern English*. London: Deutsch.

Crystal, David. 1988. *The English Language*. London: Penguin.

Ellegard, Alvar. 1953. *The Auxiliary* Do. Stockholm: Almqvist & Wiksell.

Engblom, Victor. 1938. *On the Origin and Early Development of the Auxiliary* Do. Lund: Gleerup.

Kroch, Anthony. 1989. "Function and Grammar in the History of English: Periphrastic *Do*." In: *Language Change and Variation*, R. Fasold and D. Schiffrin, eds., 133-72. Amsterdam: Benjamins.

Stanford, L.M. & Tsiang-Starcevic, S. 1996. "Use and Diffusion of Auxiliary *Do* in Interrogatives and Negatives in Shakespearean English." *LACUS Forum* 23, 665-682.

Stein, Dieter. 1990. *The Semantics of Syntactic Change: Aspects of the Evolution of* do *in English*. (Trends in Linguistics 47.) Berlin and New York: Mouton de Gruyter.

Tsiang-Starcevic, S. & Stanford, L.M. 1996. "The Role of Rhetorical Factors in the Usage of *Do*-Support in Six Shakespeare Plays." *Memoirs of the Faculty of Law and Literature: Studies in Language and Culture, Shimane University, Japan.* Heisei 8 (1996) #2: 69-90.

VII

SOCIOLINGUISTICS AND LANGUAGE CONTACT

A PSYCHOLINGUISTIC ANALYSIS OF CODE-SWITCHING

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1. Introduction

The phenomena of code-switching and language-mixing have been extensively reviewed in the bilingual literature as both socially and structurally conditioned (e.g. Lipski, 1977; Gumperz, 1982; DiSciullo, Muysken, Singh, 1986; Myers-Scotton, 1993). The sociolinguistic approaches to code-switching traditionally considered situations in which code-switching was conditioned by external factors such as preferential directionality, intention to exclude some participants from a conversation, desire to associate with the culture of one of the languages, or situations "when the words could not come." The latter factor was often regarded as "a too simplistic claim" (Lipski 1985, p.12) and was never taken seriously, probably because unlike the other factors it did not present clearly-defined social motives.

The structural approaches (and some sociolinguistic studies) relied on the surface structure of sentences such as constituency and word order, surface category membership (e.g., bound morphemes) and constituent size to provide constraints on code-switching (Lipski 1977, Gumperz 1982, Woolford 1983, DiSciullo, Muysken and Singh1986, Clyne 1987). Myers-Scotton (1995) critisized the above approaches on the grounds that they had no independent motivation relating them to other findings or to theories about the nature of linguistic structures. Myers-Scotton proposed the Matrix Language Frame model to account for an independent motivation in terms of matrix vs. an embedded language hierarchy, and a system vs. content morpheme hierarchy. The model, however, was designed to accommodate only structurally-motivated cases of code-switching.

General issues of access in code-switching were reviewed in a number of psycholinguistic studies (Green 1986, Perecman 1989, Hyltenstam 1995, Grosjean, 1995). Many of them were limited to descriptions of pathological data, and they did not consider language-specific organization of conceptual and lexical information as one of the factors contributing to code-switching.

The model of conceptual structure mapping proposed by Belyayeva (1997) offers an alternate explanation for code-switching, since it views code-switching as an access problem. It is proposed that conditions resulting in impaired access are affected by both structural and experiential factors.

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2. Model of Conceptual Structure Mapping

The model of conceptual structure mapping explicates mechanisms underlying bilingual processing of lexical and conceptual information. The model does not posit a strict dichotomy of lexical and conceptual level processing. Instead it uses the notion of a structured relational network to capture the intricate connections between lexical and conceptual information. The formal mechanisms assumed by the model include a relational network storage system with spreading activation. These are compatible with several theories and empirical findings of linguistics and cognitive psychology, e.g. Lamb's stratificational theory (Lamb 1966, 1971), a spreading activation theory of Collins and Loftus (1975), parallel distributed processing of McCelland, Rumelhart, et al. (1986), and Langacker's relational-network model (Langacker 1987, 1988).

The model uses the notion of conceptual structure as a heuristic device. Conceptual structure can be succinctly defined as a set of knowledge-based constructs such as frames, domains, and schemas that accommodate the conceptual knowledge and lexical items of a language in a way which reflects language-specific lexicalization patterns. The configuration of a given conceptual structure is determined by a number of contributing factors, such as the perceptual abilities of a language learner, the socio-pragmatic context of concept-acquisition episodes, and the available linguistic means. Stable co-occurrence of these factors determines a central tendency in the formation of a conceptual structure. This central tendency ensures that the speakers of a given language community possess highly compatible conceptual structures. Instability within the structure is associated with variability of the aforementioned contributing factors and with different degrees of entrenchment of particular structural elements within the memory of an individual speaker. The degree of entrenchment of a particular part of the structure may be specified in two ways: It may be specified in terms of the overall frequency of activation which accumulates during the lifetime of the structure or in terms of contextual saliency of recent activation episodes.

The notion of conceptual structure allows us to consider lexical-conceptual organization as a result of the lexical and conceptual development of an individual speaker. The processing patterns underlying concept formation and language acquisition are of particular importance, since they determine the possible activation patterns in lexical access. The model offers a mapping metaphor to capture the activation patterns observed in bilingual production. Incongruities resulting from mapping incompatible areas in two conceptual structures account for performance deficits in bilingual production, e.g. longer response times and lexical transfer. Bilingual production deficits result from a mismatch between current contextual requirements and contexts of concept acquisition and primary usage. Context dependence provides conditions for the complementary development of conceptual structures with some degree of overlap. The non-overlapping areas are associated with impeded ability to relate concepts expressed in different languages and are viewed as a condition for transfer-type errors and code-switching. Consequently, code-switching should be most intensive in the areas of greater structural and experiential incongruity.

The model indicates that higher and lower values of the structural and the experiential factors and their interactions can be used to compute relative levels of code-switching probability in bilingual production. As shown in Table 1, a higher probability of code-switching can be expected to occur when bilinguals activate concepts that have incongruous lexical representations in L1 and L2 (value I of the structural factor) and have been used in mutually exclusive, non-overlapping contexts (value N of the experiential factor). And vice versa, code-switching is less likely to occur when congruous lexical representations (value C of the structural factor) are used in overlapping contexts (value O of the experiential factor).

Table 1. Effects of the Structural and Experiential Factors on Relative Distribution of Code-switching Cases.

CODE-SWITCHING FACTORS		THE STRUCTURAL FACTOR	
		I	C
THE EXPERIENTIAL FACTOR	N	HIGH HIGH	HIGH LOW
	O	HIGH LOW	LOW LOW

The model is not fully specified to provide detailed predictions about the relative contribution of each of the four conditions. Nevertheless, its guiding assumptions can be used to model a language processing situation that requires interplay of the structural and experiential factors. The results can be use to make specific predictions about conditions that trigger code-switching in socially-neutral situations.

3. Relational Assessment Experiment

A relational assessment experiment was conducted to estimate distribution of code-switching across the conditions specified by the model of conceptual structure mapping. The relation assessment task was selected because it can demonstrate degrees of activation spreading arising in the relational organization of the target word stimuli. In this experiment, word pairs to be judged for their semantic relatedness were presented in contextually embedded (primed) and isolated (unprimed) conditions. The judgments were expected to demonstrate access problems in terms of a lower proportion of positive responses provided to the stimuli with incongruous lexical representation in two languages of a bilingual (the structural factor). Prior presentation of stimuli in relevant contexts were predicted to increase proportion of positive judgments (the experiential factor).

Thirty eight Russian-English bilinguals, who had lived in an English-speaking environment for at least 3.5 years (6.2 on average) and had studied English as a foreign language for at least 2 years (5.8 on average) before coming to the US, participated in the experiment. The age of the participants ranged from18 to 39. Participants related their English language proficiency at an advanced level for most aspects of production and at a near-native level in some areas of L2 production and most areas of L2 comprehension. No compensation was offered for participation.

The materials selected were forty English word pairs, which were rated by sixteen native speakers of American English as related. Half of the stimuli had incongruous lexical representations in Russian and English and half of the stimuli had congruous representations in both languages. For example, the relation maintained between the words in the pair 'belt' - 'zone' has similar lexical representations in English and Russian, whereas the relation existing between the words in the pair 'mix' - 'socialize' has incongruous representations in the two languages. In addition, twenty filler word pairs that were not related were added to the stimulus set. The data obtained in response to filler stimuli were not included in the analysis. In the primed condition, a priming sentence was provided for each stimulus pair. The sentences were selected from authentic English texts available through the LEXIS/NEXIS online news service. The sentences comprised less than four lines on a computer screen.

The experiment was conducted on an IBM compatible notebook computer. The experiment ran a computer program written in Quickbasic. The stimuli were presented in two blocks. In the first block the stimuli were given in the unprimed condition, and in the second block the stimuli appeared in the primed condition. In the unprimed condition a fixation point was shown on the screen at the beginning of every trial. It was visible for 1 second and was immediately followed by the stimulus. The first word in a pair was visible for 340 ms and was followed by the second word after a 60 ms inter-stimulus interval. Participants were required to provide a decision as soon as they read the second word, to ensure an on-line processing of lexical information. Participants were instructed to press color-coded keys as they made a decision: green for 'yes' responses, red for 'no' responses, and white if they did not know the word(s). The white key was positioned in the center of the keyboard. Left and right assignment of the red and green keys was counter balanced across participants. A one-second break occurred before the next trial. In the primed condition every trial was preceded by a sentence or two. Participants were instructed to read a sentence at a comfortable speed. They could proceed to an experimental trial by pressing the space bar. The experimental task and the procedure were the same as in the unprimed condition. Both conditions were preceded by a short practice session to ensure consistent performance in the test. Participants were tested individually, and the experimental session lasted from 25 to 30 minutes.

Table 2. The Proportion of Negative Responses on Word Meaning Relatedness Provided for Word Pairs with Congruous (C) and Incongruous (I) Representation in the Primed (P) and Unprimed (U) Conditions

		The Structural Factor	
		I	C
The Experiential Factor	U	.23	.10
	P	.16	.08

The proportion of negative responses on word meaning relatedness provided for word pairs with congruous and incongruous representation in the primed and unprimed conditions are given in Table 2. As predicted, the words with incongruous representations in L1 and L2 were less often judged as related as compared to the words that have congruous representations. Similarly, access to target representations was more impeded in the unprimed condition.

Table 3. Relative Effect of Experimental Conditions on Bilingual Production

		The Structural Factor	
		I	C
The Experiential Factor	U	.40	.18
	P	.28	.14

Note: I = incongruous lexical representations, C = congruous lexical representations, U = stimuli were presented in isolation, P = stimuli were previously presented in a meaningful context.

A 2 x 2 ANOVA (analysis of variance) was performed on proportion of positive responses using participants as random factors. As predicted, the analysis demonstrated significant main effects of the structural and the experiential factors (*F*(1,116)=57.32, $p<.01$ and *F*(1,116)=10.60, $p<.01$, respectively), and a significant interaction of these factors (*F*(1,116)=12.94, $p<.01$).

Since the proportion of negative responses to related word pairs reflects deficits associated with bilingual processing, the distribution of negative responses was taken to calculate relative effect of each of the specified conditions on bilingual production (see Table 3).

4. Recorded Speech Analysis

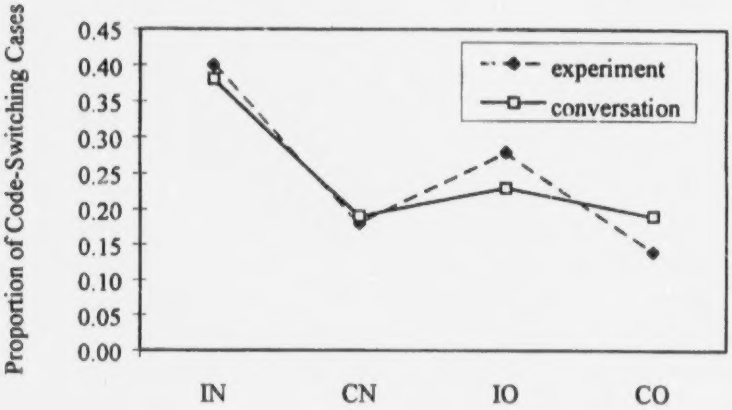
Recorded speech analysis was performed with the purpose of conducting a correlational comparison of the experimentally generated predictions and the actual distribution of code-switching cases during on-line speech production.

One hundred and eighty minutes of speech samples were recorded. These were conversations between fluent Russian-English speakers produced in informal settings. The discourse language was Russian. Speech production was not influenced by such external social factors as preferential directionality, intention to exclude some participants from a conversation, or the desire to associate with the culture of one of the languages. A total of 52 instances of code-switching were identified. All of them were cases of intrasentential code-switching. They were coded according to the degree of representational congruity of the target concepts in Russian and English (I and C values of the structural factor), and according to the degree with which lexical items can be used in the contexts associated with L1 and L2 conceptual structure (N and O value of the experiential factor). For example, the English lexical form *mortgage* has no equivalent lexical representation in Russian (I value of the structural factor), and it was used in non-overlapping contexts, i.e. in the contexts exclusively associated with L2 conceptual structure (N value of the experiential factor). On the other hand, the English term *down payment* has an equivalent representation in Russian (C value) and it was used in overlapping contexts (O value). The use of the English term *high school* was coded as an IO type of code switching. Although it is used in overlapping contexts, its lexical representations in English and Russian do not match, since an equivalent term in Russian is used to denote higher educational establishments such as colleges and universities. The term *health food* can serve as an example of a SN type of code-switching. Even though an equivalent lexical representation is available in Russian, the concept has an exclusive association with L2 conceptual structure.

A distribution of the actual code-switching cases across the four conditions was compared to the experimentally predicted distribution. The graphic representation of the compared values is provided in Figure 1 (on the following page).

The Pearson product moment correlation coefficient calculated for the two sets of data demonstrated a strong correlation between the actual and experimentally predicted distribution of code switching, $r = .93$. The analysis demonstrated a high variance overlap between two measures, $r2 = .87$. That means that the guiding assumptions proposed by the conceptual structure mapping model can be used to predict the magnitude with which the structural and experiential factors affect production patterns of bilingual speakers.

Figure 1. Comparison of experimentally predicted occurrence of code-switching and its actual distribution across the



specified conditions in the analyzed speech samples.

Note: I = incongruous lexical representations, C = congruous lexical representations N = lexical items are used in non-overlapping contexts (i.e. exclusively linked to L1 or L2 conceptual structure), O = lexical items are used in overlapping contexts.

5. *Conclusions*

The purpose of this study was to provide an alternate account of code-switching proposed within the framework of the conceptual structure mapping model of the bilingual memory. According to the model, code-switching should be viewed primarily as an access problem. Whenever bilinguals fail to access a particular lexical representation in the target language, they repair it by using a term from the non-target language, assuming that the latter will not result in the breakdown of communication between interlocutors.

It was demonstrated that conditions causing impaired access were affected by continuous interaction of the structural and experiential factors. Thus, a bilingual's ability to access and activate particular representations in their L1 or L2 should be viewed as a function of their conceptual and lexical development. Simultaneous conceptual and language development in early bilinguals provides a lower activation threshold for the conceptual structure which is most closely associated with the concept acquisition episode. Conversely, late bilinguals, whose conceptual development is primarily associated with L1 conceptual structure, demonstrate higher activation of L1 relational organization in the tasks that require L2 access. The assumption about greater reliance on L1 conceptual structure in L2 learning is supported by the finding that adult learners are less successful in employing formulaic expressions (Wong-Fillmore, 1976; Yorio, 1989). Instead of learning conventionalized idiomatic expressions, adult bilinguals apply extensions of L1 expressions to L2 relational organization.

The findings reported in second language acquisition literature imply that the parallel acquisition of languages by children in different socio-linguistic situations may lead to greater separation between L1 and L2 lexicons (Comeau, Genesee, Nicoladis, & Vrakas, 1996). Genesee et al. (1995) suggest that code-switching in early bilinguals is conditioned by limited proficiency in one or the other language. Yet instances of code-switching in early bilinguals indicate that children are able to relate conceptual representations established through distinct linguistic systems (Genesee, Nicoladis, Paradis, 1995). The findings from word and category learning studies suggest that concept acquisition cannot be considered without a social-pragmatic and functional context. Conceptual representations in young children are closely associated with the context in which they are acquired (Fivush, 1987). The model of conceptual structure mapping maintains that some lexical representations may not be immediately accessible because accompanying contextual conditions do not match contexts of concept acquisition and primary usage. The validity of the present explanation is also supported by the evidence of spontaneous translations, which sometimes occur with code-switching (Volterra & Taeschner, 1978). Spontaneous translations point to the fact that children recognize their access problems and repair them.

The analysis of adult code-switching data reported here and the reviewed studies of child language-mixing support the assumption that code-switching should be viewed as a repair strategy that is present at various stages of bilingual lexical and conceptual development.

REFERENCES

Belyayeva, D. 1997. *A Model of Conceptual Structure Mapping*. Doctoral Dssertation, University of Florida.

Clyne, M. 1987. "Constraints on Code Switching: How Universal Are They?" *Linguistics, 25,* 739-764.

Collins, A.M., & Loftus, E.F. 1975. "A Spreading Activation Theory of Semantic Processing." *Psychological Review, 82,* 407-428.

Comeau, L., Genesee, F., Nicoladis, E., & Vrakas, G. 1996. "Can Young Bilingual Children Identify Language Choice as a Cause of Breakdown in Communication?" Paper presented at 21st Annual Conference of Language Developments. Boston University. November 1-3, 1996.

DiSciullo, A.-M., Muysken, P., & Singh, R. 1986. "Government and Code-Mixing." *Journal of Linguistics, 22,* 1-24.

Fivush, R. 1987. "Scripts and Categories: Interrelationships in Development." In: U. Neisser (ed.), *Concepts and Conceptual Development: Ecological and Intellectual Factors in Categorization*. Emory Symposia in Cognition, 1. New York: Cambridge University Press.

Genessee, F., Nicoladis, E., & Paradis, J. 1995. "Language Differentiation in Early Bilingual Development." *Journal of Child Language*, *22*, 611-631.

Green, D.W. 1986. "Control, Activation and Resource: a Framework and a Model for the Control of Speech in Bilinguals." *Brain and Language, 27,* 210-223.

Grosjean, F. 1995. "A Psycholinguistic Approach to Code-switching: the Recognition of Guest Words by Bilinguals." In: L. Milroy & P. Muysken (eds.), *One Speaker, Two Languages: Cross-disciplinary Perspectives on Code-switching*. New York: Cambridge University Press.

Gumperz, J.J. 1982. *Discourse Strategies*. New York: Cambridge University Press.

Hyltenstam, K. 1995. "The Code-switching Behavior of Adults with Language Disorders - with Special Reference to Aphasia and Dementia." In: L. Milroy & P. Mysken (eds.), *One Speaker, Two Languages: Cross-disciplinary Perspectives on Code-switching*. New York: Cambridge University Press.

Lamb, S. 1966. *Outline of Stratificational Grammar*. Georgetown University Press.

— 1971. "Linguistic and Cognitive Networks." In P. Garvin (ed.), *Cognition: A Multiple View*. Spartan Books.

Langacker, R.W. 1987. *Foundations of Cognitive Grammar*. Vol. 1. Theoretical Prerequisites. Stanford: Stanford University Press.

— 1988. "An Overview of Cognitive Grammar." in B. Rudzka-ostyn (ed.), Topics in Cognitive Linguistics. Amsterdam & Philadelphia: John Benjamins.

Lipski, J. 1977. "Code-switching and the Problem of Bilingual Competence." In: M. Paradis (Ed.), *Aspects of Bilingualism*. Columbia, S.C.: Hornbeam Press.

— 1985. *Linguistic Aspects of Spanish-English Switching*. Tempe, Arizona: Arizona State University.

McClelland, J., D. Rumelhart et al. 1986. *Parallel Distributed Processing: Explorations in the Microstructure of Cognition.* (Vol. 1 - *Foundations*/Vol.2 - *Psychological and Biological Models).* Cambridge, MA: MIT Press.

Myers-Scotton, C. 1993. *Dueling Languages: Grammatical Structure in Code-switching.* Oxford: Clarendon Press.

— 1995. "Lexically-based Production Model of Codeswitching." In: L. Milroy & P. Muysken (eds.), *One Speaker, Two Languages: Cross-disciplinary Perspectives on Code-switching.* New York: Cambridge University Press.

Perecman, E. 1989. "Language Processing in the Bilingual: Evidence from Language Mixing." in K. Hylstenstam and L. Obler (eds.), *Bilingualism Across the Lifespan: Aspects of Acquisition, Maturity and Loss.* New York: Cambridge University Press.

Volterra, V., & Taeschner, T. 1978. "The Acquisition and Development of Language by Bilingual Children." *Journal of Child Language, 5,* 311-326.

Wong-Fillmore, L. 1976. *The Second Time Around: Cognitive and Social Strategies in Second Language Acquisition.* Doctoral dissertation, Stanford University.

Woolford, E. 1983. "Bilingual Code-switching and Syntactic Theory." *Linguistic Inquiry, 14,* 520-536

Yorio, C. A. 1989. "Idiomaticity as an Indicator of Second Language Proficiency." In: K. Hylstenstam & L. Obler (eds.), *Bilingualism Across the Lifespan: Aspects of Acquisition, Maturity and Loss.* New York: Cambridge University Press.

LANGUAGE SHIFT IN POST-APARTHEID SOUTH AFRICA: THE APPEAL OF ENGLISH

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1. Introduction

According to Lanham and Macdonald (1979:26) "the primary social division in white South African society is unquestionably that of language loyalty (English versus Afrikaans as mother tongue)." Language loyalty among white Afrikaans speakers has perhaps always been more intense than among English-speaking South Africans, because of the attempts by the British government to suppress Dutch and later Afrikaans for ideological reasons during the nineteenth and early twentieth centuries. Afrikaans played a major role in the emergence of white Afrikaner nationalism towards the end of the nineteenth century, becoming a symbol of the white Afrikaans speaker's identity and of their struggle against British domination. "Language identity was (and is still in some communities, notably the extreme right wing groups) equated with the ethnic identity of the white Afrikaans speaker ... For them, language was an integral part of religion, politics and of development" (Watermeyer 1996:101).

However, in 1994 South Africa declared a new language policy in which all languages were given equal status. This has meant that Afrikaans has undergone a dramatic shift in terms of its sociopolitical position from being one of 2 official languages (with English) to being one of 11 official languages in the country. Now beleaguered, and loaded with negative connotations after decades of association with the very unpopular Apartheid government, which had made special efforts to enhance the language, its speakers find themselves in a difficult position. In recent years there has been an intense debate on the position of post-Apartheid Afrikaans (Webb 1992); Cluver (1993) writes of its serious decline, noting the functions it is losing to English and the disappearance of boundary markers for Afrikanerdom other than the language itself (cited in Branford 1996:40).

To make matters worse, despite South Africa's new language policy, and despite the writings of people like Robert Philipson (1992) on the dangers of linguistic imperialism, there is increasing evidence of a steady shift in allegiance in favour of English. Its demographic distribution, its apparent neutrality, its range of native and non-native users across cultures, its ability to fulfil a range of linguistic functions and its rich literary tradition has made English enormously appealing and powerful world-wide (Pennycook 1994). In particular there have been rapid changes in recent years in the general attitude of **Afrikaans speakers** towards English, with a growth of positive attitudes and a covert prestige attached to the ability to speak English (de Klerk & Bosch 1993; Bosch & de Klerk 1993; Cluver 1993; Watermeyer 1996).

It is generally believed that Afrikaans speakers are more bilingual than English speakers, or are at least more prepared to use their second language to accommodate the listener. According to one survey, "only 9,6% of first-language English speakers consider themselves fully bilingual, while 13,5% of Afrikaans speakers do; almost twice as many English speakers (22,4%) reported no competence in the other official language as Afrikaans speakers (12,9%)" (Lass 1987:303). With the increased exposure of Afrikaans children to English through the media, and the heightening of opportunities for interlingual interaction, high levels of bilingualism are increasingly likely. Add to this the declining popularity of Afrikaans and the negative stereotypes with which it is associated in the minds of many South Africans, and the likelihood for language shift to English increases.

As a result, since the opening of all schools to all races and the removal of the requirement that pupils had to have the medium of instruction (MOI) of the school as their mother-tongue, there have been two discernable (and very different) movements: the first, led by right-wing Afrikaners, has been a racist-inspired move to retain monolingual independent Afrikaans schools; the second has been a steady trickle of Afrikaans-speaking children to the English-medium schools in English (and urban) areas of the country, particularly to the private (and very expensive) schools. While this move may partially be explained in terms of parental worries about dropping standards, it may also represent a subtle but definite shift in language allegiance. In any event, such a shift will have an inevitable effect on the linguistic identities of the children concerned.

This paper reports on the experiences of a 10-year old white Afrikaans-speaking little boy (M) who, at the start of 1994, was moved from the local Afrikaans-medium school to a local boys' English-medium private school, while his parents maintained Afrikaans 100% at home. He was interviewed and tape-recorded one week after he moved schools, and then again at the start of his second year at the school. In addition, the mother (K) undertook to monitor his linguistic behaviour and to report anything that might potentially be of interest; she was interviewed at the end of the first year. M's written work during the year was also made available for analysis, and his English teacher and remedial teacher were also interviewed at the end of the year.

The study was essentially qualitative, and aimed to monitor the phonological, syntactic and lexical changes occurring in M's language use for possible evidence of a language shift taking place from dominance in Afrikaans to dominance in English and to assess the psycho-social effects of the change in medium of tuition.

When the mother tongue (MT) is different from the economically dominant language of a given region, shifts in usage and attitude are observed (cf. Hofman et al. 1984:151). These shifts are accelerated when a child moves to a school with a MOI other than his/her MT, for although the child may continue to speak the MT at home, the language of school and peers influences the child's language preferences, and "during this period there is a notable increase in the percentage of persons who make the definite break with the language of daily use" (Veltman 1983:20). Data indicate that this process of language shift accelerates as children get older (op. cit.:1983:213). Such trends have been observed world-wide (e.g. Taighde 1990; Holmes et al. 1993) "What begins as the language of social and economic mobility ends, within 3 generations or so, as the language of the crib as well, even in democratic and pluralism-permitting contexts" (Fishman 1989:206).

2. The Local Context

Among factors which are important in resisting wholesale language shift are the role of institutional power, social attitudes, the number of MT speakers, use of the language at home, residential contiguity and opportunities to speak the MT, resistance to inter-linguistic marriages, support for community languages in schools and institutional resources such as community newspapers and religious services (Holmes et al. 1993:15).

As far as the Eastern Cape Province is concerned, which contains 15,9% of the total population of South Africa (approximately 38 million in the 1991 census), there has been a decrease in the reported number of mother-tongue Afrikaans speakers between the censuses of 1980 and 1991. Afrikaans speakers number 557,020 (9.8% of total) compared with 230,520 English speakers (6,7%), who, though thinly spread, cluster around the urban areas. Grahamstown in the Eastern Cape Province of South Africa is a small educational centre with an estimated population of 125,000, of whom approximately 12,000 are white and some 80,000 Xhosa-speaking black people (10,000 coloured, <1,000 Indian) (unpublished mimeograph of the Development Bank of South Africa 1995). It is generally known as an English-speaking town, although there is a fairly sizeable Afrikaans-speaking community, which is effectively divided into two as a consequence of 50 years of apartheid: the white and coloured Afrikaans speakers, who were until recently served by two separate schools (both are now multiracial).

3. The Case History

M started life in Grahamstown as a monolingual Afrikaans-speaker (basically a minority language in the town); his parents moved him to an English-medium school at the start of Std 2 (aged 10.2 years), after he had formally studied English as a second language for 18 months. The linguistic history of the parents has a bearing on their decision: while both regard themselves as totally Afrikaans-speaking, the mother (K), while she grew up as a mother-tongue Afrikaans speaker in a very Afrikaans area, was inculcated with a strong sense of the need to be able to speak English properly, probably due to the influence of her English-speaking maternal grandmother. She was enrolled for extra English lessons from an early age, and although she never used or heard English in the community, she remembers having to take out an English and an Afrikaans book when she went to the library.

Although she very seldom had to speak English, her parents always had a few English friends, and Thursdays were "English days" in the family, in order to give the children an opportunity to practice. K's husband, although he had grown up in Grahamstown, is more thoroughly Afrikaans than she, with a strong pro-Afrikaans sentiment and a corresponding resistance to English. Although he is fluent in English, and acknowledges its usefulness in the wider world, it was his side of the family who most strongly opposed the decision to move M to an English school. ("They sort of labelled it as deserting Afrikaans").

The parents' decision was based on a combination of the falling standards at the local Afrikaans school, the rapidly changing political situation in the country, M's own abilities and eagerness to learn, and their desire "to provide the best academic opportunity, even if it meant sacrificing mother-tongue instruction" (K). They had felt that it was important to make the change early, because "it's not only a language, it's a culture, it's an identity." They had won M over by emphasising his eagerness to learn, and the opportunities which English would provide, especially overseas and in the world of computers. They had also stressed how easy Afrikaans lessons would be at an English school. When interviewed at the start of the change, M expressed a generally positive, if somewhat tentative and cautious attitude to his new school. In his view at that time, this was a temporary move, and he would move to a different school after Grade 7 (the changeover from junior to high school).

The parents' main reservations about their decision had concerned linguistic difficulty in particular subjects (e.g. the difference in counting, where English says "twenty-one" and Afrikaans "een-en-twintig"), and possible problems in forming good friendships.

The parents had been very much aware of the social and ideological significance of their decision in the community and "the sense of the Afrikaans community of being a traitor" (K). This reached them through the father's parents and sister-in-law, whom some people had tried to use as a channel "to try and convince us to do otherwise" (K). The move therefore took courage and conviction. Although there was no overt ostracism, the issue was, and still is, not publicly discussed, out of politeness. The fact that three families had subsequently followed their example a year later, after consulting them about their experience, suggests that once they had broken the ice, other people felt safer to follow: "we believe we did the right thing, and more and more seem to be doing it. So in a way, what was fiercely resisted I think has sort of become a *voorbeeld*, an example" (K).

4. Results

In the first interview, M expressed a guardedly positive sentiment about his new life at an English school. Small incidents revealed that the process of adjustment was not easy: on being asked to write a letter to his granny at school during an English lesson in the first week, he automatically wrote it in Afrikaans; he had also had to insist on the correct pronunciation of his name, because it had an English version which tended to be used (e.g. Johan/John[1]). It was clear from his responses that arriving home after an English school day was an enormous relief, and he could then relax his guard and stop concentrating.

However, his determination to master English was evident in his (voluntary) choice of an English book from the library (*Asterix goes to Corsica*). M very carefully avoided using any Afrikaans words throughout the interview; particularly noticeable by its total absence in the interview was "ja", the Afrikaans word for "yes" which is a colloquial form ubiquitously used by nearly all South African English speaking children. Instead, he used "yes" 56 times, marked evidence of conscious self-monitoring. Already during the first week there were traces of English influences on his spoken Afrikaans at home, and several instances of borrowing of lexical items referring to school routines, for example:

> Ons moes in **lyne** [*rye*] staan en ons skoene **afhaal** [*uittrek*]
> (We had to stand in **lines** and **take off** our shoes.)
> Ons het Saterdag **clubs** en ek doen **woodcarving** [*houtsny*].
> (On Saturdays we have clubs and I am doing woodcarving.)

In his interview, which was in English, he revealed a fairly high level of competence in understanding the questions and in responding sensibly to them. The length of his speaking turns averaged 5.5 words per utterance, with 45% of all his turns 3 words or fewer. Heavy traces of Afrikaans were evident in his English pronunciation, with unaspirated [h] and devoicing of final consonants (did [dit]; dogs [dok]), and trilled [r] particularly noticeable. He said that he did not consciously think about speaking in English, saying that the words came naturally. Apart from occasional problems with vocabulary (e.g. Then we write it down, *trace it down*; We went *ice-skiing* [skating] there) the grammatical features which characterised the interview could be categorised as follows:

1. Problems with concord, e.g. When I *were* in Sub A; I *has* played before.
2. Avoidance of all past tense forms of verbs by using "did", e.g. We *did get* R5 a day; I *did go* to practise and I *did catch* the balls.
3. Difficulty with determiner choice, e.g. I did buy *a* aeroplane; It was ^ hundred and sixty rand; I did build *a* airport.
4. Inappropriate choice of relative pronouns, e.g. The lions *what* wanted to eat her.
5. Inappropriate adverbial forms, e.g. How did it go? quite *nice*; We do the stuff very *slow*.

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[1] A fictitious equivalent

Over the year, particular patterns in M's use of English and of Afrikaans emerged. As far as his English usage was concerned, there was a steady improvement in overall competence and a commensurate decrease in the rate of errors. Initial problems in reading English (e.g. in week 6 he did not recognise the words *lavatory* or *corridor*) steadily improved, as did the English marks he obtained in formal classes. At the start of the year the Neale Analysis of Reading test yielded a score of 8.9 years for English reading accuracy and 8.2 for reading comprehension, and by the end of that year (chronological age 11.1), he had a reading age of 10.10. On the Schonell Word Recognition Test M achieved a score of 9.4 when he was 10.7, and a year later (11.7) the score had increased to 11.1. Scores on the Schonell Silent Reading Test also improved, the gap between chronological age and reading age narrowing steadily. In dictation tests his age increased from 8.6 at the start of the year to 10.5 in November of that year. The teacher's comments on the reports during the year were consistently positive.

English and Afrikaans are both Germanic languages, and share several syntactic and phonological features, and this similarity was problematic for M. At first he experienced problems with pronunciation and recognition of English words (e.g in the first month he heard *60 Kgs* as *60 cages* and pronounced *Australia* with the first half Afrikaans and the second half English, indicative of his efforts to classify the two competing sound systems). Occasional comments revealed that he was consciously thinking about similarities and differences between sounds: in week 6 he reported that they were studying *die Bore war* [the Boer War] and a week later commented *maar dis mos nie dieselfde as 'n 12-bore haelgeweer nie* [but it's not the same as a 12-bore rifle]. When words in both languages were very similar, confusion was more likely (e.g. "Kyk ma, 'n *spelling* fout" [look mom, a spelling mistake]; "Dis 'n *program* mainly oor babatjies" [it's a programme about babies]). Problems in Afrikaans spelling appeared to increase in frequency over the year, as English spelling patterns became more dominant in his academic life.

Cross-linguistic interference was noticeable in his spoken and written Afrikaans and English, and the frequency of code-switching at home steadily increased with each passing week, as well as the complexity of the words which were borrowed. The following categories were evident[2]:

1. Transfer of Afrikaans syntactic constructions to English, e.g. My mother checks the sugar *if* we come back [Afr. *as* = when/if] (w1).
2. Codemixing and use of English idiomatic expressions in Afrikaans, e.g. Is dit nie 'n bietjie *out of the way* nie? (w2) [isn't it a bit out ...]; Hy het sommer *stupid* ge-*act* (w25) [he simply acted stupidly].
3. Borrowings from English, e.g. Die kat *slide* teen die yskas af (w2) [the cat is sliding down the fridge]; Dis *creepy* in C se kamer (w10) [it's creepy in C's room].

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[2] Bracketed references (e.g. (w4)) refer to the week in which the utterance was noted.

4. Literal translations from English, e.g. Dit moet iets *meen* [beteken] (w5) [it must *mean* something]; Hy was *unguilty* [onskuldig] (w27) [he was unguilty].
5. Using English syntactic patterns in Afrikaans, e.g. Dis 'n *nuut (= nuwe)* muur (w10) [It's a new wall]; Dis a *klein ding (= kleine dingetjie)* (w10) [It's a small thing].

Code-switching is commonly regarded as a shift from base language to the other language for a word, phrase or sentence; when such switches are intrasentential, certain syntactic constraints determine the likely grammatical contexts (Saunders 1988:187; Appel and Muysken 1987:129). Code-switching by accomplished bilinguals usually manipulates language for special effects and is related indirectly to processes of power and solidarity. It is thus usually a language practice in which individuals draw on their linguistic resources to accomplish conversational purposes - strategies for playing the game of social life. However, at this stage in his transition from Afrikaans to English, M does not seem to be consciously manipulating the two languages for social effect. Indeed, K asserted that he was unconscious of any slips, and while it may well be the case that his use of English expressions at home was a subtle device to assert his new and changing identity, it is much more likely that these "interferences" are deviations because of the influence of the other language, especially as they occur at all levels (syntactic, phonetic, lexical, pragmatic and semantic) and modes (spoken, written). It would seem that they are not static or permanent traces of the one language on the other, but are rather "dynamic" and ephemeral intrusions, accidental slips in stress patterns or syntax etc., resulting from the transition process that M is undergoing in changing from dominance in one language to dominance in another.

After 27 weeks, M was asking questions at home about Afrikaans words, and explanations were being given in English (e.g. M: "Wat beteken *omhein*? [what does *omhein* mean?] K: Fenced in). By the end of week 33 he had begun to use *jy/jou* increasingly as a term of address instead of the polite *ma/pa*. By the end of week 34 he mentioned how nice it was to be able to watch TV programmes in either language with equal ease. The parents' decision to use only Afrikaans at home became increasingly difficult to uphold, and, as K put it: "hy praat Afrikaans soos 'n Engelse kind [he talks Afrikaans like an English child] - it's absolutely fascinating". She noted that English had begun to have more of an effect on his Afrikaans than vice versa, and that she had started to make an effort "to keep his Afrikaans a good standard". She confirmed that he seemed totally unaware of the slips he was making in his Afrikaans, and increasingly, there were cases when he spoke English to her by mistake, without noticing. She noticed that at times, when listening to the radio or watching a TV programme, he was unaware of which language it was in, and when answering the telephone he was often unable to remember whether the speaker was English or Afrikaans.

He even reported dreaming in English and his mother reported that he had talked in his sleep in English. In K's view, after a full year, his former sense of himself as Afrikaans had changed radically, and he had a dual loyalty to both languages.

Although K denied ever having strong Afrikaans feelings, and feeling threatened by English, she admitted: "I suppose it makes me sad [that M had shifted language allegiance] ... I didn't think it would come in my lifetime".

After a year, not only was the informant much more confident, but there were significant linguistic changes: the average utterance length had increased to 7.4 words per utterance, with only 36% of them shorter than 3 words. There were only two minor errors during the interview ("... and that kinds of things"; "... and she's talks to anybody...") and these could easily be attributed to normal slips of the tongue rather than incompetence. In addition, the avoidance of past tense forms on verbs, which had been so prevalent a year earlier, had disappeared completely, with several past tenses successfully used. Also noticeable was the unconscious sprinkling of "ja" (43 occurrences in total compared with only 3 of "yes") throughout the interview, which had been noticeable by their absence a year earlier. This word, initially seen by him as "Afrikaans" and to be avoided at all costs a year earlier, had now been permitted back by M, in view of its usage by his English peers.

Changes in attitude to English were evident in his firm determination not to shift back to an Afrikaans-medium school when asked, although there was some ambivalence about the distant future. It was apparent that although his home life was still decidedly Afrikaans, the rest of his world had become rapidly anglicised and nearly all his friends were now English-speaking. Apart from Afrikaans predominating in domestic life, he also tended to think in Afrikaans during lessons in mathematics (but no other lessons), and during emotive moments, such as when he was unhappy. Subtle changes in personality had also emerged: his mother had noticed in M an increased preparedness to stand up for his own rights, to query things and defend his point of view. She was generally pleased about this greater confidence, but admitted to trying to counteract the reduced respect for the authority of adults which she noticed in M:

> I do, I do in you know, say "'n mens praat nie so met jou ma of pa nie... as jy met ouma praat doen dit op 'n behoorlike manier" [you don't talk like that with your mother or father ... when you talk to granny, do it properly]. I've said to M now okay you don't do that ... even if they do it, you don't.

She also mentioned having some difficulty in knowing whether M's friends' behaviour (some of which she disapproved of) was a general English custom or not. Overall, both parents had no regrets over their decision; the only down side had been the loss of his friends. M had never expressed regret of any kind, only very positive sentiments. He had by then made it very clear that he did not want to switch back to Afrikaans later, saying it would be too difficult because of the lack of technical Afrikaans vocabulary and the fact that he was doing all his subjects (including maths) and his reading totally in English.

5. Concluding Remarks

Usually the language spoken by parents becomes the language of their children, but this case study reveals a context where the parents, while maintaining their own Afrikaans identity and lifestyle, have supported the development of anglicised language behaviour for their child (cf. Veltman 1983:91). As Holmes et al. (1993) point out, strongly positive attitudes to the home language can easily prevail despite parallel positive attitudes to English; this family values English and want to improve their son's competence in it, but they also value their own language very highly for cultural and traditional reasons, which gives "abundant evidence of subjective ethnolinguistic vitality" (Holmes et al. 1993:14).

However, "languages do not come into contact under neutral emotional conditions. There are always concomitant attitudinal reactions on the part of the groups in contact" (Shuy et al. 1973:151). This study has revealed the strong emotive currents underlying the experiences of the members of this family, and the concomitant and inevitable shift in perceptions about the identity of the participants, especially M. Over a year M has changed from seeing himself as an Afrikaans child temporarily placed among English speakers to regarding himself as part of an English world which he does not want to leave; without any change in geographical location, in religion, or in home life, he has managed to shift to a world where his friends, his learning experiences, his thoughts and even his dreams are English ones. M has a dual identity at present, probably currently on the fulcrum of true bilingualism, simultaneously Afrikaans and English.

This study underlines the importance of motivation and attitudinal factors in predicting success in learning a second language: "the combination of effort plus desire to achieve the goals of learning plus favourable attitudes towards the learning the language" (Gardner 1985:10). Also of crucial importance is acculturation – "the social and psychological integration of the learner with the target language" (Spolsky 1989:143). Acculturation requires social integration, sufficient contacts with the L2 group and psychological openness, with the learner wanting to adopt the ways of the TL group. All these conditions were met in this case. Functional or instrumental motivation to learn English was strong, and Grahamstown provided a context in which social enclosure (the extent to which separate groups maintain separateness) was very low, offering extensive contact opportunities across language groups. Congruence and similarity between the two cultures, and the mother's personal facility in English obviously reinforced positive feelings about the L2 and increased M's motivation and ego-permeability, all essential for successful learning (Schumann 1986).

During his year in an English school, M has acculturated and modified his attitudes, knowledge and behaviour. Learning the appropriate linguistic habits has involved more than learning the language, it has involved social and psychological adaptation, changes in beliefs, attitudes, values and other behavioral patterns, sometimes against the wishes of his parents. While he continues to speak Afrikaans at home, the language of school and of his peers will persist in influencing his language preferences. Because of the overpowering influence of school, peergroup and outside environment, the domain of language use is not likely to remain compartmentalised much longer (Tosi 1984) and English is increasingly likely to invade the home (Holmes et al. 1993:16). The more M uses English, the more likely it is that one day his children will be exposed to it, and their MT will shift to English: the principal language of parents becomes the MT of the children (Veltman 1983).

Because of South Africa's linguistic diversity and its democratic constitution, the issues of minority language rights and language in education are under the spotlight. This study is a pilot study for a large-scale research project on language shift on an individual and a group level in the Eastern Cape Province; such research will, we hope, provide valuable insights into language shift at a national level and may underlie patterns of change in identity, which has implications for SA's **national** identity.

Despite having only 3.4m MT speakers in South Africa, English continues to be used for modernisation and social change, and to provide unprecedented access to mobility and advancement to native and non-native users who possess it as a linguistic tool. M is in the vanguard of a growing cohort of young South Africans who probably feel a sense of linguistic schizophrenia as they undergo a shift in language loyalty and linguistic competence from their MT to English, either from choice or imposition. English simultaneously represents oppression (for some) and freedom, offering access to elite educational, scientific and political domains. But it is a necessary evil to even its strongest opponents, and more and more parents are following the trend of ensuring that their progeny master English and make it theirs.

REFERENCES

Appel, R. and Muysken, P. 1987. *Language in Contact and Bilingualism* London: Edward Arnold.

Bosch, B. and de Klerk, V. 1993. "Afrikaanssprekende Ooskapenaars: 'n bedreigde spesie?" *Tydskrif vir Geesteswetenskappe* 33(4):299-311.

Branford, W. 1996. "English in South African Society: A Preliminary Overview" in de Klerk, V. (ed.) *Focus on South Africa*, 35-52. Amsterdam: Benjamins.

Cluver, A. de V. 1993. "The Decline of Afrikaans." *Language Matters*. 24,15-41.

de Klerk, V. and Bosch, B. 1994. "Language Attitudes in the Eastern Cape: A Tri-Lingual Survey". *South African Journal of Linguistics* 12(2), 50-59.

de Klerk, V. (ed.) 1996. *Focus on South Africa*. Amsterdam: John Benjamins.

Fishman, J. 1989. *Language and Ethnicity in Minority Sociolinguistic Perspective* Clevedon, Avon: Multilingual Matters.

Gardner, R.C. 1985. *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation*. London: Edward Arnold.

Hofman, J.E. and Cais, J. 1984. "Children's Attitudes to Language Maintenance and Shift." *International Journal of the Sociology of Language* 50.147-153.

Holmes, J., Roberts, M., M. Verivaki and A. Aipolo. 1993. "Language Maintenance and Shift in Three New Zealand Speech Communities." *Applied Linguistics* 14(1),1-24.

Lanham, L. and C.A. Macdonald. 1979. *The Standard in South African English and its Social History*. Heidelberg: Julius Groos Verlag.

Lass, Roger. 1987. *The Shape of English: Structure and History*. London: Dent.

Pennycook, A. 1994. *The Cultural Politics of English as an International Language*. London: Longman.

Philipson, R. 1992. *Linguistic Imperialism*. Oxford: Oxford University Press.

Saunders, G. 1988. *Bilingual Children*. Clevedon: Multilingual Matters.

Schumann J.H. 1986. "Research on the Acculturation Model for Second Language Acquisition." *Journal of Multilingual and Multicultural Development* 7, 379-92.

Shuy, R.W. and Fasold, R.W. 1973. *Language Attitudes: Current Trends and Prospects*. Georgetown: Georgetown University Press.

Spolsky, B. 1989. *Conditions for Second Language Learning*. Oxford: Oxford University Press.

Taighde, Y. 1990. *Language Shift among Schoolchildren in Gaeltacht Areas 1974-1984*. The Linguistic Institute of Ireland.

Tosi, A. 1984. *Immigration and Bilingual Education*. Oxford: Pergamon.

Veltman, Calvin. 1983. *Language Shift in the United States*. New York: Mouton.

Watermeyer, Susan. 1996. "Afrikaans English." In: de Klerk, V. (ed.) *Focus on South Africa*, 99-124. Amsterdam: Benjamins.

Webb, V.N. 1992. *Afrikaans ná Apartheid*. Pretoria: J.L. van Schaik.

THE ROLE OF L1 TRANSFER IN LANGUAGE CHANGE

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1. Introduction

In the 1970s and 1980s, several previously neglected areas of linguistics came to the forefront of research with a renewal of interest and the development of competing theoretical models. Two of these areas are creolistics and second-language acquisition.

Considerable work has been achieved in both fields using various theoretical models, but until the 1990s each developed independently with little cross-fertilization. A third area which is related to both of these, and which in a sense may help bridge the gap, is language contact studies, itself a sub-field of historical linguistics.

Thomason & Kaufman (1988) distinguish between **borrowing** (L1 speakers borrowing words and structures from an L2) and **substratum interference** (interference in the L2 due to imperfect learning of the L2 by speakers of another language). In this paper, I will focus primarily on shift-induced language change since this concerns all three areas mentioned above, namely language contact, creole studies, and SLA.

2. L1 Transfer in Second-Language Acquisition

Until recently, historical linguists have neglected the acquisition aspect of substratum interference, and taken it for granted that transfer does occur. Yet this assumption is not uncontroversial: several questions must be answered namely: 1) what is interlanguage, i.e., what system are L1 structures transferred to? 2) is there such as thing as L1 transfer in SLA, or are second languages acquired in the same way as mother tongues, i.e., from scratch (=universal principles of UG)? 3) if there is such a thing as transfer (which is the implicit assumption make by historical linguists working on language contact), are there any constraints on which structures may be transferred, or are most likely to be transferred from the L1? In particular, are these constraints dictated by the respective structures of the L1 and the L2, or rather by universal principles governing syntactic structures? 4) once L1 structures are transferred, why do some "fossilize" in the interlanguage and, ultimately, become part of the speaker's ultimate competence in the target language?

One issue which concerns both ***creole studies*** and ***language contact*** is the starting point in SLA. There are at least four different theoretical assumptions regarding the initial-state of second-language acquisition within the *Principle and Parameters* framework:

1) The initial state of SLA is the L1, while UG has withered away (Bley-Vroman 1990);
2) The L1 is the initial state, but UG is still available (White 1985, Shwartz 1995);
3) The initial state of SLA is UG, as for first language acquisition (Flynn 1987);
4) UG is available, but the L1 does play a role and some L1 structures are borrowed into the interlanguage (White 1996).

From a historical linguistics perspective, I believe position 4 is the most likely. The only position I would reject *a priori* is 3), since this would exclude the possibility of substratum interference: although some SLA researchers firmly believe this, there is overwhelming evidence from both historical linguistics (Weinreich 1953, Thomason & Kaufman 1988) and from SLA studies (White 1985, 1996) that at least some syntactic structures can be transferred from the L1 into the L2 interlanguage. On the other hand, it is also clear that not all learner's errors can be attributed to the L1, and that some errors are due to universal acquisition strategies (like preverbal negation). So position 1) is also excluded. There remain two possibilities: 2) or 4). The problem with 2) is that, if the L1 were really the starting point, the first stage in second-language development would amount to a relexification of the L1. Again, I think there is enough evidence that this is not the case (Corder 1992). So I take it for granted that position 4) is the correct assumption since it allows for transfer while accounting for the fact that the interlanguage is a natural language which conforms to UG principles.

Corder (1992: 23) shares this assumption when he considers that, syntactically, the initial stage of SLA is not the L1: "The starting point is nothing as complex as the L1 grammar, it is more like a pidgin than like relexified L1". This final remark is of course of central interest from the perspective of historical linguistics, and in particular creole genesis.

Other researchers are aware of the relevance of SLA research for historical linguistics:

> "L2 data are also of interest in the context of language variation, both synchronic and diachronic, since L2 acquisition involves grammar change within the individual speaker (...). Similarly, L2 acquisition has relevance to theories of creolisation, potentially providing the opportunity to watch in miniature processes that are assumed to have influenced the formation of creoles" (White 1996: 13)

3. L1 Transfer and Subsequent Fossilization in the L2 Interlanguage

3.a Transfer & Fossilization at the Individual Level. SLA researchers have suggested that some mother tongue features are more likely to be transferred than others, namely, structures that are universally unmarked. White (1987) provides evidence that marked constructions (such as preposition-stranding) are unlikely to be transferred from the L1 into the L2 interlanguage. If the L1 has the *unmarked* setting, then the marked value is even less likely to show up in the interlanguage.

I suggested in section 2 that L1 transfer is an important factor in second-language acquisition, and that some structures may be more transferable than others. It has long been observed that second-language learners tend to *plateau* at a certain degree of proficiency and stop learning. In other words, their interlanguage tends to fossilize into a stable, language state which, under some conditions, may become a new dialect (Hiberno-English; Indian English). The phenomenon of fossilization was first analyzed by Selinker (1972) who noted that some interlanguage structures seem almost impossible to eradicate from the learner's interlanguage. The fact that most learners seem to *plateau* at a certain stage of acquisition is referred to by Selinker as *fossilized IL competences.* In other words, speakers attain a certain level of competence and stop learning.

It is not certain why some features, and not others, become fossilized in the L2 learner's interlanguage, even if there is massive evidence of the correct structure in the L2 input. Selinker & Lakshmanan propose a framework to account for fossilization, the Multiple Effects Principle (MEP):

> **When two or more** SLA factors work in tandem, there is a greater chance of stabilization of interlanguage forms leading to possible fossilization" (198)

Many studies on apparent fossilization can be reinterpreted in the light of the Multiple Effects Principle.

1st example: Hindi speakers of English (ECM verbs)

Some Hindi speakers of English avoid using infinitivals after English ECM verbs (*want*) and instead use finite subordinate clauses:

(1) "I want that he go there"

Some English verbs are Exception Case Markers, i.e., they are able to assign case to a lexical NP in the subject position of their infinitival complement. Here, L1 transfer is the likeliest explanation: *want* in Hindi is not an ECM verb and calls for a [+tense] complement. Selinker & Lakshmanan claim that three factors are at work: 1) language transfer (no ECM verbs in Hindi; in fact, ECM is marked, the default in acquisition being that there are no ECM verbs); 2) a UG principle, namely, the case filter: every phonetically realized NP must be assigned case; 3) evidence that other verbs of the L2 (like English *hope* and *wish*) are not ECM verbs and call for tensed complements.

(2) "I hope (that) he goes there".

2nd example: French learners of English (strict adjacency of verb and object)

Another parametric difference in UG, according to Selinker and Lakshmanan (1992), is the adjacency principle for case assignment. More concretely, some languages allow intervening material between the verb and the object, others do not. The unmarked (or subset value) is [+strict] adjacency. English is [+strict] adjacency whereas French is [-strict], as illustrated in the following examples from Selinker & Lakshmanan (1992: 210):

(3) * I drank carefully the coffee.
(4) J'ai mangé rapidement le dîner.

White (1989) reports that French learners of English accept sentences in English which violate the [+strict] adjacency condition, suggesting L1 transfer of this particular parameter setting. Selinker & Lakshmanan (1992) propose that, here again, the MEP (multiple effects principle) is operative: 1) language transfer from French; 2) non-operation of the subset (or unmarked setting) principle in SLA; 3) insufficient evidence concerning target-language facts, i.e., adverbs can occur in many other positions in English.

In this particular example, I find both the second and third factors unconvincing: for the second factor, S. & L. seem to imply that UG is no longer operative in SLA, a hypothesis which has been contradicted by several studies. Second, concerning the third factor, the fact remains that the verb and object are always adjacent in English; but perhaps French learners of English would need negative evidence to know that adverbs cannot occur between V & O, in order to reset the parameter to the most restrictive grammar. And negative evidence is something SLA learners rarely get, except perhaps in classroom settings.

In summary, the two claims of Selinker & Lakshmanan (1992) are:

5) Interlanguage structures tend to fossilize when two or more factors work in

tandem.
6) Language transfer is either necessary, or at least a privileged co-factor in cases of fossilization.

3.b Transfer and Fossilization in an Entire Speech Community

3.b.1 Substratum Interference in Language Change. To determine which types of structure are more likely to be transferred than others, SLA theory might benefit from examining data on language contact: by studying the transferability of structures in a wide range of historical situations, researchers might arrive at some conclusions about which structures are good candidates for transfer, and how strong the constraints on transfer are. In the previous section we looked at an account of **individual** transfer and fossilization of L1 structures. Odlin (1992: 178) goes one step further and looks at the same phenomenon, but at the level of an entire **speech community**.

With respect to identifying substratum influence, or L1 transfer, some principles may help to shed light on what structures are transferrable (Odlin 1992: 180).

1) If a structure is transferrable, much if not all of its distributional range in the L1 should be evident in the L2 interlanguage;
2) If a structure is transferrable in one language contact situation, it should be transferrable in another (all things being equal);
3) If a structure is transferrable, it should be especially likely in 'border regions' between two linguistic areas, i.e., where there is a greater concentration of L1 speakers shifting to the L2.

3rd example: Hiberno-English

Odlin (1992) tests these hypotheses by reviewing work done on Hiberno-English, a dialect where influence from Irish Gaelic is relatively uncontroversial. One construction examined by Odlin (1992) is the use of *"and"* as a subordinating conjunction:

(5) "I only thought of him there *and* I was cooking my dinner" (meaning '*while* I was cooking dinner').

Principle 1: The syntactic distribution of *and* in Hiberno-English is much wider than in any other variety of English. For example, *agus* can introduce a subordinate clause which *precedes* the main clause. As it turns out, Hiberno-English *and* has exactly the same distribution as Gaelic *agus*:

(6) *Agus e san IRA, phos sé Albanach bui.*
And him in-the IRA married he Scot yellow
'He married an orange [Protestant] girl while in the IRA
(Odlin 1992: 185, after Boyle 1973)

(7) The sergeant ran for his life. *And* he going out over the wall, he hit against a tomb.
(Odlin 1992: 187, after O'Duilearga 1962)

Principle 2: Use of *"and"* as a subordinator is found in many locations in Ireland, quite far apart, as well as in Gaelic-speaking areas of the Scottish Highlands.

Principle 3: Subordinating *"and"* is especially common in areas where Gaelic is still spoken, suggesting that geographic proximity to Gaelic (and hence of Irish-English bilinguals) increases the use of subordinating *"and"*.

4th example: Lorraine French

One case study which makes an explicit connection between L1 transfer in SLA and long-term substratum interference is Mather (1997). In this study, two groups of speakers from Eastern Lorraine (France), a region whose inhabitants are shifting from German to French, were asked to judge the acceptability of various French sentences containing German features. The first group were L2 French speakers in their eighties, the second were L1 French speakers in their late teens. Since both groups were born and raised in the same town (Sarreguemines), it is hypothesized that any German substratum effects in the French of the younger generation are inherited from L1 German features fossilized in the L2 French of the older generation.

Constructions in which an internal argument (direct object) precedes the verb were rejected unanimously by both groups, but the position of adjuncts is much more flexible, as seen in the following example:

(8) * *Elle a le livre acheté*
She has the book bought

(9) ? *Paul doit à Noël aller chez ses parents*
Paul must at Christmas go to his parents

Sentence (8) is rejected by all speakers, but sentence (9) is accepted by half the elderly speakers. Example (8) violates two principles of French word-order: First, the auxiliary and the verb (past participle) are not contiguous, which is illicit in French since these two constituents are normally contiguous (except for some adverbs and negation). Second, the object precedes the verb, instead of following it as it invariably does in French (unless it is a clitic).

Example (9),which is accepted by some older speakers, only violates the first of the two principles above: the argument *chez ses parents* follows the verb, and the prepositional phrase [*à Noël*] precedes it, which is possible in French given that the adjunct's position is much freer than that of the argument or object. In sum, example (9) is deviant only because of the distance between the verb and the auxiliary, not because of the relative order of the complement [*chez ses parents*]. With respect to Selinker and Lakshmanan's (1992) **Multiple Effects Principle**, the structure in (9) is more likely to fossilize because two, complementary factors come into play, namely (a) L1 transfer and (b) the (marginal) acceptability of the sentence in Standard French. It should also be pointed out that sentences such as (9) were both accepted and produced by both elderly and younger speakers (Mather 1997).

3.b.2 Substratum Interference in Language Genesis. When studying interference and language contact phenomena, the genesis of pidgins and creoles is an unavoidable phenomenon since mixed languages are a prime example of borrowing and transfer.

There exist several competing theories on creole genesis:

Chaudenson (1989): creole = restructuring of colloquial superstrate languages
Bickerton (1984): creole = result of innate Bioprogram used by children acquiring pidgin
Lefebvre (1986): creole=result of relexification of substrate with French words
Mufwene (1990): mixed view, believes all three play a role ("complementary hypothesis")

Odlin's (1992) three principles used to identify transfer from Irish into English are echoed by proposals formulated by creolists, in particular by McWhorter (1996: 470) who proposes four **tests** used to establish whether or not a given creole structure can be attributed to an African substrate.

Test 1: Was the substratum language well-represented numerically in the founding stages of the language?
Test 2: Is this construction relatively marked crosslinguistically? If not, does the manifestation of this construction in the creole match the particular configuration

in the candidate substrate language closely?
Test 3: Does this construction regularly appear in creoles of other lexical base with the same substrate?
Test 4: Is this construction of robust semantic substance? (McWhorter 1996: 471)

Problems with McWhorter (1996):
Test 1 is not foolproof since a small group of powerful/prominent people could be enough to transfer features (Thomason 1997, p.c.)
Test 2: Very often, marked features get transferred (e.g., Tok Pisin morphology from Oceanic substrates)
Test 3: Transfer in one situation could be an accident, especially with marked features (Thomason 1997, p.c.).
Test 4: There are examples of conjunctions/prepositions being transferred.

4. Substratum Transfer: Mild Versus Heavy Interference

Although L1 transfer at the individual level and substratum effects in language change and language genesis are not analyzed in the same framework, there are in fact interesting parallels to be drawn. Some SLA researchers (White 1996) were aware of the possible implications of their research for historical linguistics. Conversely, some historical linguists, in particular creolists, have attempted to draw parallels between SLA, contact-induced language change, and creolization. Mufwene (1990), Thomason (1997) and Manessy (1994) are three such attempts.

In an insightful article, Manessy (1994:211 ff) shows similarities between some structures in French creoles and in L2 French spoken in present-day West Africa, in particular serial verb constructions and comparatives. Similarly, Mufwene's (1990) goal is to compare transfer in SLA and substrate effects in creolization and to show how each field of investigation can complement the other:

> "...to identify ways in which findings in research on transfer may enrich that on substrate influence, and vice-versa" (Mufwene 1990: 1).

According to Thomason & Kaufman (1988), creolization differs from other contact-induced language change in degree more than in kind. Thomason (1997: 22) also believes that contact languages arise through the same mechanisms as contact-induced change.

There are, of course, several differences which have been pointed out by various authors:

a) One important distinction between L1 interference and creolization is the degree of bilingualism: if it is high, you get interference; if it is low, you get creolization (Thomason 1997: 23); i.e.: high exposure leads to interference or perfect SLA, low exposure leads to pidginization/creolization.

b) Creolization involves more than L1 transfer: depending on the situation, some formal features are the result of simplificatory processes (loss of synthetic tense marking, allomorphic variation and other semantically opaque distinctions) and subsequent restructuring which, according to Baker & Corne (1986) and Bickerton (1984) is attributable neither to the substrate nor to the superstrate, but to an innate Bioprogram.

c) It is not clear whether substrates influence a creole during or after its formative stage: According to Baker & Corne (1986), it occurs only after creole genesis, and if they are correct, substratum interference in creoles is no different than regular L1 transfer. My position is that the substratum was probably at work both during **and** after creolization as new slaves were brought into plantations and created more basilectal varieties of creoles: there is strong evidence of this in Réunion Creole (Chaudenson 1995) and in Haitian (Valdman 1994).

d) SLA researchers (White 1987) do not have the same conception of markedness: in SLA, markedness is defined within a particular theoretical framework (Principles and Parameters), whereas in creolistics it is defined in terms of cross-linguistic frequency. In creole studies, markedness is really a relative notion which depends on the contact situation. (example: Tok Pisin dual/plural and inclusive/exclusive distinctions).

e) In substratum interference, the L2 interlanguage is used to speak with native speakers of the L2 (not always: Gastarbeiter Deutsch, see also Halbdeutsch in Thomason & Kaufman 1988). In creolization, it is clear that early creole speakers were not trying to communicate so much with their masters as amongst themselves: Given that there was little corrective feedback, it follows that non-native characteristics of their incipient creole were reinforced.

f) Degree of creolization depends on European/slave ratio, and access to lexifier language: high end of continuum has access, low end does not.

5. *Conclusion*

I would like to conclude by a few remarks on future directions for research in this area. There is obviously a need for what Odlin (1992) termed *cross-fertilization* between SLA research, language contact studies and creolistics. In particular, SLA and creole studies have made huge strides forward over the past quarter century or so, but have done so independently of one another.

Yet researchers in both fields have reached similar conclusions in many instances:

Bley-Vroman's (1990) position that the initial state of SLA is the L1 is echoed by Lefebvre's (1986) theory that Haitian Creole is Fon (=L1) relexified with French vocabulary. If this is the case, then relexification may very well be defined as the fossilization of a very early stage of L2 acquisition, where because of insufficient input only the vocabulary of the target-language is acquired. Are the gaps filled in by default, universal structures (Bickerton's Bioprogram), or by massive transfer of L1 structures? These are questions which concern both disciplines equally. Similarly, Odlin's (1992) 3 principles for shift-induced language change are echoed by McWhorter's tests to establish a substratum origin in creole genesis.

Finally, it must be stressed that although some L1 structures are more or less likely to be transferred because of typological, markedness or learnability considerations, there are "no absolute linguistic barriers to borrowing", and "anything is possible from a strictly linguistic perspective" (Thomason 1997: 25). The challenge, then, is to draw on case studies and experience in all three fields of study to establish which features are most likely to be transferred in each contact situation, whether or not there are *some* constraints on transfer, and to use evidence from synchronic case studies in SLA to reconstruct plausible scenarios for historically-attested cases of substratum interference and creole genesis.

REFERENCES

Baker, Philip, & Chris Corne. 1986. "Universals, Substrata and the Indian Ocean Creoles." In: Pieter Muysken & Norval Smith (eds.), *Substrata Versus Universals in Creole Genesis*, 163-183. Amsterdam: John Benjamins.

Bickerton, Derek. 1984. "The Language Bioprogram Hypothesis." *Behavioral and Brain Sciences* 7, 173-221.

Bley-Vroman, R. 1990. "The Logical Problem of Foreign Language Learning." *Linguistic Analysis* 20, 3-49.

Chaudenson, Robert. 1989. *Créoles et enseignement du français*. Paris: L'Harmattan.

Corder, Pitt. 1992. "A Role for the Mother Tongue." Susan Gass & Larry Selinker (eds.), *Language Transfer in Language Learning*, 18-31.

Flynn, Susan. 1987. *A Parameter Setting Model of L2 Acquisition*. Dordrecht: Reidel.

Lefebvre, Claire. 1986. "Relexification in Creole Genesis Revisited: The Case of Haitian Creole." In Muysken & Smith (eds.), 279-300.

McWhorter, John H. 1996. "A Deep Breath and a Second Wind: The Substrate Hypothesis Reassessed." *Anthropological Linguistics* 38:3, 461-494.

Manessy, Gabriel. 1994. "Modalités d'appropriation d'une langue seconde." In: Daniel Véronique (ed.), *Créolisation et acquisition des langues*. Aix-en-Provence: Publications de l'Université de Provence.

Mather, Patrick André. In press. "Transfert et fossilisation : une perspective diachronique." *Journal of the Canadian Association of Applied Linguistics* 18:2.

Mufwene, Salikoko. 1990. "Transfer and the Substrate Hypothesis in Creolistics.

Studies in Second Language Acquisition 12 (1): 1-23.

Odlin, Terence. 1992. "Transferability and Linguistic Substrates." *Second Language Research* 8:3, 171-202.

Schwartz, Bonnie. 1995. "Transfer and L2 Acquisition of Syntax: Where Are We Now?" Plenary paper presented at the Second Language Research Forum, Cornell, October 1995.

Selinker, Larry. 1972. "Interlanguage." *International Review of Applied Linguistics* 10, 209-231.

Selinker and Lakshmanan. 1992. "Language Transfer and Fossilization: The Multiple Effects Principle." Gass & Selinker (eds.), *Language Transfer in Language Learning*, 197-216. Amsterdam: Benjamins.

Thomason, Sarah G. 1997. "Contact As A Source of Language Change." In: Richard D. Janda & Brian D. Joseph (eds.), *A Handbook of Historical Linguistics*. Oxford: Blackwell.

Thomason, Sarah G. and Terence Kaufman. 1988. *Language Contact, Creolization, and Genetic Linguistics*. Berkeley: University of California Press.

Weinreich, Uriel. 1953. *Languages in Contact*. The Hague: Mouton.

White, Lydia. 1985. "The Pro-drop Parameter in Adult Second Language Acquisition." *Language Learning* 35, 47-62.

White, Lydia. 1987. "Markedness and Second Language Acquisition: the Question of Transfer." *Studies in Second Language Acquisition* 9, 261-286.

White, Lydia. 1989. "The Principle of Adjacency in Second Language Acquisition: Do L2 Learners Observe the Subset Principle?" Gass & Selinker (eds.), *Linguistic perspectives on Second language acquisition*. Cambridge: Cambridge University Press.

White, Lydia. 1996. "The Tale of the Ugly Duckling (or the Coming of Age of Second Language Acquisition Research)." In *Boston University Child Language Development Proceedings* 20, 1-17.

NARRATIVE STRATEGIES AND SOCIAL IDENTITY IN PUERTO RICAN SPANISH

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1. Introduction

The relationship of social change to discourse style is particularly evident in Cleveland, Ohio, where approximately 70-80% of the city's 30,000-40,000 Hispanic residents are Puerto Rican, a group that began settling there in the early 1950s. Many Puerto Ricans in Cleveland have a strong sense of attachment to their home town on the island and to their family, both in Cleveland and in Puerto Rico. The vast majority come from small towns or rural areas of the island and are either laborers themselves or are descendants of a laboring family. Few of the adults who migrated from Puerto Rico are highly educated, although some of their children and grandchildren finish high school and enter institutions of higher learning.

As part of an ongoing oral history project of Cleveland's Puerto Rican community, this paper examines oral narratives in the speech of 20 Puerto Rican informants ranging in age from 24 to 90 years. Those who are under 60 years (6 females and 5 males) are professionals or social service volunteers having substantial contact with non-Puerto Rican culture in Cleveland. Those who are 60 and over (3 females and 6 males) are retired and/or performing volunteer work, most are of lower income, and at least two are illiterate. The older informants generally lack fluency in English and appear to have very little contact with non-Puerto Rican culture.

Research on sociolinguistic methodology (Wilson 1987, Briggs 1984 and 1986) has shown that researchers will obtain more reliable data if they get to know informants before conducting recorded interviews. Stubbs (1983) specifically discusses methodology for discourse analysis. For the study reported here, tape-recorded conversations, lasting approximately 45 minutes, were conducted in Spanish by the author with each of the 20 informants. The investigators became acquainted with each potential informant before asking for the interview. In most cases, several days over a six-month period were spent conversing informally with each person in a peer-group setting before requesting an interview. These conversations took place at their workplace or during social center activities such as domino games, handicrafts, and meal preparation. Using this method of participant observation, the investigators were able to determine that informants' speech was not significantly different during the recorded interview than during peer-group activities. The interviews were conducted in either the work place or a community center in an attempt to help the informant to feel as comfortable as possible.

The questions used for the interviews are designed, in part, to elicit narratives of personal experiences. Preliminary analysis has shown that the oral narrative style differs between two groups of the informants. The older, less educated speakers who have spent more of their life on the island, are more evasive in their responses to interviewers' questions and prompts, and are more likely to create their own topics of discussion. In contrast, the younger and middle-aged speakers who have a higher educational level and have spent more of their life on the mainland United States are more direct in their responses during the interview. However, all (except the speakers who are highly educated and have extensive daily contact with mainland United States culture) told very effective narratives involving a large amount of complicating action, in addition to orientation and evaluation.

This paper will show that a difference in narrative strategy exists between Puerto Ricans with greater and lesser contact with mainland United States culture. Those Puerto Ricans who maintain Spanish as their primary language and have limited contact with non-Puerto Rican culture tend to deliver more involved narratives with more elaborate evaluation devices, such as historical present or reported direct speech. Furthermore, these speakers, most of them in their senior years, are more likely to use one narrative as a springboard for other stories they wish to share, changing topics at will without interviewer prompts. In contrast, Puerto Ricans with more regular contact with non-Puerto Rican culture, and with much greater fluency in English, tend to limit topics of narratives to those introduced by the interviewer and wait for further prompting after each narrative. The narratives that these younger, generally more highly educated speakers deliver are more direct, and, consequently, less elaborate. Though the oral narrative strategies differ significantly between the two groups, both groups tend to deliver complete narratives.

2. *Data*

First, let us examine the use of Spanish by speakers in the community who are less than 20 years of age. After some informal conversations with young people, Uber (1997) discovered that most do not often speak Spanish, with the exception of those who have recently moved to Cleveland from Puerto Rico. When the investigator spoke to them in Spanish, they answered in English or in code-switching. They appear to be uncomfortable speaking Spanish with native speakers of English. Spanish, for them, seems to be a private language used only for certain occasions, such as with older people, with those who do not speak English, or among themselves only to keep secrets from monolingual English speakers.

The youngest age group participating in recorded interviews, those speakers between age 20 and 40, told direct, yet complete narratives, which include an orientation, complicating action, and evaluation. Five narratives told by the four speakers (#2-Narrative III, #10-Narrative IV, #13-Narratives II and V, and #20-Narrative I) in this age group have been analyzed. Consistent with the findings of Alvarez (1989 and 1991), the male speakers in this group tend to narrate in Spanish, whereas the females, while narrating in Spanish, utilize code-switching in emphatic and evaluative clauses. The two male speakers (#13 and #20) show no usage of reported direct speech or historical present. One male speaker (#13) told a rather interesting and exciting narrative (Narrative V) about a game of chicken he played with friends as a child. After not stopping his bicycle at an intersection, he went under a moving car. After completing the narration, the informant paused and looked at the interviewer, waiting for a reaction and the next question. The interviewer asked him what he felt at that moment. He simply answered, "susto" 'fright', and again waited for further prompting.

Female speaker #2 uses 6 instances of reported direct speech and employs code-switching to English, while raising her voice, to emphasize important concepts:

(1) Mi mamá es una de ésas que son grass roots . . .
'My mom is one of those grass roots types.'

(2) Yo era the radical porque como, como muchacha no me era,
no me gustaban las muñecas, I wanted trucks, I wanted trees, I wanted cars.
'I was the radical, because, as a girl, I didn't like dolls, I wanted trucks, I wanted trees, I wanted cars.'

Speaker #2 also employs code-switching combined with reported direct speech:

(3) Ese día pensé, "This is it, this is, I'm history now, dogmeat."
'That day I thought, "This is it, this is, I'm history now, dogmeat."'

Female speaker #10 also employs code-switching in her narrative, although not for emphasis or evaluation, but rather in situations where she cannot think of the word or expression in Spanish. She also uses English discourse markers you know and so, although the narrative is carried out in Spanish. She uses one instance of historical present during the complicating action, but this is in the set phrase:

(4) Por poco me caigo por allí.
'I almost fall down there.'

Although there are some evaluation devices (such as code-switching and reported direct speech) used by the female informants in the 20-40 year old group, there is virtually no usage of historical present by any members of this age group. The narratives are very direct and to the point. Furthermore, the entire 45-minute interviews are characterized by direct answers to interviewers' questions. These speakers are employed as professionals in broadcasting, business, or in the administration of social service agencies, occupations which involve daily contact with mainland U.S. culture.

Most speakers in the 40-60 year old group are also direct in their responses during the interviews. Seven informants fall into this age group (#1, #5, #6, #14, #16, #17, and #19), although only one (#5) employs indirect discourse during the interview. This speaker is a female who is married to a man much older than she. She works as a volunteer at a center for senior citizens, but is not involved in administrative work. During the interview, she took over entirely, using it as an opportunity to discuss topics of her own interest, and there were few conversational turns between herself and the interviewer.

The other members of the 40-60 age group were much more direct in response to interviewer questions, and there were many conversational turns between informant and interviewer. These speakers are more involved with mainland U.S. culture on a daily basis than speaker #5. They are employed as professionals (television broadcasting, the ministry), or in administrative positions with social service agencies. One of these speakers (#16) recounted a narrative (Narrative VI) about her trip to the mainland U.S. from Puerto Rico. A storm made the flight very frightening for her, but the narrative is so direct and to the point that the interviewer had to prompt the informant to provide an evaluation of the story by asking "¿Creías que te ibas a morir?" 'Did you think you were going to die?' In addition, the interviewer encouraged further evaluation with the comment "Para una niña de siete años..." 'For a little girl seven years old...' Again, this informant stopped speaking after responding to each question, waiting for the next question from the interviewers. Her narrative does not contain any uses of the historical present. There are two instances of reported thoughts functioning as an evaluation device:

(5) Yo decía, "Ah, no voy a llegar a ver Estados Unidos."
Yo decía, "¡Ay, Dios mío!"
'I said, "Oh, I'm not gonna get to see the United States."
I said, "Oh, my God!"'

but further prompting on the part of the interviewer was necessary to elicit this. Therefore, it appears that, for this age group, only the informant who does not deal with Anglo-American culture on a daily basis uses indirect discourse. The others who are involved with non-Puerto Rican culture regularly were more direct in responding to interviewer questions.

Of the 9 speakers in the over-60 age group (#3, #4, #7, #8, #9, #11, #12, #15, and #18), 7 employ indirect discourse during the interviews (#3, #4, #9, #11, #12, #15, and #18), and two are more direct (#7 and #8). Speaker #7, who answers interviewer questions and is direct in responses, also uses English words here and there. He is married to a Korean woman who does not speak Spanish, and his children and grandchildren speak more English than Spanish. Given that he is in his early 60's, and did not come to the mainland until he was age 28, this would suggest that the type of discourse used by these speakers depends not on age, gender, or age upon arrival, but rather on identification with mainland U.S. or Puerto Rican culture. This informant is involved with Anglo-American culture regularly. The other speaker (#8) who responds directly to questions is a "lame" outside the peer-group, in the sense of Labov 1972:255-292. He does not play dominoes with the other men at the senior citizen center, but instead spends the time puting together jigsaw puzzles by himself. Such speakers have been shown (Labov 1972) to behave different linguistically than peer-group members.

On the other hand, the other 7 elderly speakers, who are all retired and spend their time at Hispanic senior citizen centers, are more indirect in their responses during the interview. Some begin by answering questions directly, but become more indirect as the conversation progresses and they become more at ease. One speaker (#3) actually directed the interview himself and asked questions of the interviewers. Another (#4) does not really answer any of the questions asked of her, but takes the opportunity to discuss the same topics over and over (such as her home town and her childhood), regardless of the questions asked by the interviewers. A third speaker (#9) began the interview by responding to a question with a 25-minute non-answer, and then stood up and walked out while still talking. Two other informants (#11 and #12) failed to answer some questions, but used them as a point of departure to talk about their youth in Puerto Rico. Another elderly speaker (#18) had been discussing the traditional wedding customs that existed in Puerto Rico during her youth. Upon being asked what her wedding was like, she responded with a narrative (Narrative VIII) about how she got married. In this narrative reported direct speech is used as an evaluative technique:

(6) El papá de mi esposo . . . le dijo, "Pues tú te casas en esta religión ahora, porque viene este muchacho, y vas a aprovecharlo.

'My husband's dad said to him, "Well, you get married in this religion now, because this guy [protestant minister] is coming, and you're gonna take advantage of it."'

Although there are no instances of the historical present, a repetitive reference is made to the fact that they are still married in the eyes of the church, which is an effective evaluation device, providing relevance to the present time:

(7) Estamos casados a lo católico todavía, estamos casados con veinte años de separación, estamos casados todavía, fíjate.
'We're still married in the Catholic church, we're married with twenty years of separation, we're still married, imagine that.'

This informant continued with religious commentary, which led into a discussion of street crime and robbery, at which point she introduced the topic of the time that her purse was stolen. Again, we see examples that those informants who are more attached to the Puerto Rican island culture are more likely to continue on to other topics which they introduce, as compared to those informants who have more contact with United States non-Puerto Rican culture.

One last elderly informant told two very interesting narratives. The first (Narrative VII) developed out of a discussion of playing and betting on dominoes. The speaker said that he had won more money in the lottery than in dominoes, and continued into a narrative about a dream he had in which numbers were shown to him. The next day he was unable to remember those numbers until too late to buy a lottery ticket. Those very numbers came up, so he says that he lost eight thousand dollars. The narrative contains three instances of reported direct speech and five uses of the historical present, including the following examples:

(8) y, y salgo a jugarlo con ocho pesos
'and, and I go out to play it with eight dollars'

(9) Pues resulta que cuando salgo, juego . . .
'But it turns out that when I go out, I play . . .'

(10) y cuando me vengo a acordar a las siete ya
'and when I come to remember [the numbers] at seven o'clock already'

This narrative led into a series of discussions about dreams, nightmares, and dangerous areas in Puerto Rico. The informant then brought up a long narrative (Narrative IX) about an encounter with a mystic, introduced by the prefacing statement, "Un día me pasó un chiste que te voy a decir." ("One day a funny thing happened to me that I'm going to tell you.") With no further prompt from the interviewer, he proceeded to tell this story and others. The informant claims that advice received from this mystic helped him to obtain employment and cured his son of an illness caused by the spirit of a dead man. The speaker is a highly-skilled narrator who is very good at translating personal experience into dramatic form, using internal evaluative devices.

The narrative shows a large amount of usage of the historical present tense and reported direct speech throughout. Such usage makes the story come alive and serves as an internal evaluative device (Silva-Corvalán 1983, 1984, 1988). Also, intensifiers, such as repetition/paraphrase or quantifiers and other intensifiers (muy 'very', mucho 'a lot', nada 'nothing', tan 'so', tanto 'so much', todo 'all', puro 'pure(ly)', seguro 'certainly', hasta 'even', fíjate 'imagine'), are used as a means of internal evaluation (Labov 1972).

In the full narrative, there are 37 instances of reported direct speech [RDS], and 30 instances of the historical present [HP]. For purposes of tabulation, each conversational turn is counted as one instance of reported direct speech. Similarly, a string of historical presents in the same utterance are counted as one instance. Given this conservative tabulation method, it would not be out of line to state that both of these evaluative devices are used heavily in this narrative.

We may divide the narrative into two parts: Part I contains the preface, some orientation, and mostly complicating action. Part II contains the elaboration and resolution. In Part I the complicating action starts right up and continues throughout. The use of reported direct speech (RDS) and historical present (HP) make the story come alive, and both are used extensively. As shown in Table 1, there are 31 instances of RDS and 27 instances of HP in Part I. Thus, RDS begins on an average of every 5.52 lines (breath groups), and HP begins on an average of every 6.33 lines in Part I. However, in Part II, the elaboration and resolution, there are very few instances of RDS and HP by comparison: 6 instances of RDS and 3 instances of HP. In other words, RDS begins on an average of every 14.5 lines, and HP begins on an average of every 29 lines in Part II.

TABLE 1

	RDS	**HP**
Part I (preface, orientation, complicating action)	N=31 every 5.52 lines	N=27 every 6.33 lines
Part II (elaboration, resolution)	N=6 every 14.5 lines	N=3 every 29 lines

Other internal evaluative devices (repetition or paraphrase, and other intensifiers) are used throughout the narrative, in both Parts I and II, as shown in Table II. In fact, we can see that these evaluators are used with greater frequency in Part II, as a means of elaboration.

TABLE 2

	Repetition/ Paraphrase	**Other Intensifiers**
Part I (preface, orientation, complicating action)	N=19 every 9 lines	N=9 every 19 lines
Part II (elaboration, resolution)	N=21 every 4.1 lines	N=11 every 7.9 lines

Given that the main function of the elaboration section of a narrative is evaluative, to highlight the fact that the events were important or unusual, it is not surprising to find more repetition/paraphrase and other intensifiers (muy, mucho, nada, tan, tanto, todo, puro, seguro, hasta, fíjate) in Part II.

We have seen that RDS and HP are used extensively to narrate complicating actions as a means of making the story come alive, for both the speaker and the hearer. Indeed, the speaker appears to be more excited when he is using these techniques, and the interviewer was mesmerized by the story. In addition, we have seen that repetition/paraphrase and intensifiers are used extensively throughout the narrative, especially in Part II, which contains the elaboration section.

One further point is of interest here. Labov (1972), in his studies of oral narrative in the Black English Vernacular, has shown that older, highly skilled narrators from traditional working class backgrounds are very good at translating personal experience into dramatic form, using internal evaluation. In comparison, Labov finds that middle-class speakers tend to use external evaluation, interrupting the narrative to explain what the point is. Indeed, the most exciting and interesting narratives from this corpus of speech from the Puerto Rican community of Cleveland, Ohio are those told by the older, less educated, working class speakers, such as the teller of the story analyzed here. Let us hope that research will be continued on such fascinating narratives.

3. Discussion

In general, the interviewers did much less talking during sessions with the older, less educated informants who have had less contact with mainland United States culture. In fact, some speakers felt that this was their opportunity to discuss whatever they wanted, given that they often said, "Are you ready?" or "May I begin now?" near the beginning of the interview. The younger and middle-aged informants who have had more formal education and who are involved in Anglo-American culture daily, generally waited for prompts from the interviewers before speaking or continuing, and their narratives tend to be less elaborate.

The findings of the present study correlate with those of Morris (1981), who states (109-111) that there is a convention of indirectness present in discourse carried out in Puerto Rico, characterized by oblique answers to direct questions. He suggests that vagueness may indicate respect and may be used by peers as a sign thereof (118). He also mentions (14) a tendency discussed by some of his informants, which involves taking over a conversation entirely. In fact, we have seen a similar tendency among the informants who identify more with island Puerto Rican culture. Morris (37) postulates that in Puerto Rico a question or statement may not be understood, 'but it opens the way for some other projection of an individual's own train of thought.' He also states (134) that Neoricans, Puerto Ricans who have lived for a long time in the mainland United States, 'are rather more direct, precise, and attentive than islanders of similar age and position in society.'

4. Conclusions

The findings of this study indicate that a difference in narrative strategy exists between Puerto Ricans with greater and lesser contact with mainland United States culture. Those Puerto Ricans who maintain Spanish as their primary language and have limited contact with non-Puerto Rican culture tend to deliver more involved narratives with more elaborate evaluation devices, such as historical present or reported direct speech. Furthermore, these speakers, usually in their senior years, are more likely to use one narrative as a springboard for other stories they wish to share, changing topics at will without interviewer prompts. In contrast, Puerto Ricans with more regular contact with non-Puerto Rican culture, and with much greater fluency in English, tend to limit topics of narratives to those introduced by the interviewers, and wait for further prompting after each narrative. The narratives that these younger, generally more highly educated speakers deliver are more direct, and, consequently, less elaborate. Though the oral narrative strategies differ significantly between the two groups, both groups tend to deliver complete narratives.

The study undertaken here has shown cultural differences between two types of Puerto Rican speakers with respect to conventions as to how one carries on a conversation. There are different expectations and rights in a conversation in different cultures (Gumperz 1982a and 1982b). The purpose of the conversational interaction for the speakers who identify with island Puerto Rican culture appears to be not mere communication of ideas or telling of stories, but also control of the floor, given that there is very little turn-taking. We may also be witnessing the linguistic results of social evolution and change (Fairclough 1992). Puerto Rico was at one time a small, egalitarian face-to-face society, especially in the small towns in which these speakers were raised. Of course, indirectness in discourse is not advantageous in Anglo-American culture, which may explain why those speakers who have regular contact with mainland U.S. culture do not utilize this conversational strategy.

REFERENCES

Alvarez, Celia. 1989. "Code-Switching in Narrative Performance: a Puerto Rican Speech Community in New York." *English Across Cultures, Cultures Across English*, ed. by Ofelia García and Ricardo Otheguy, 372-386. (*Contributions to the Sociology of Language* 53) Berlin: Mouton de Gruyter.

— 1991. "Code-Switching in Narrative Performance: Social, Structural, and Pragmatic Function in the Puerto Rican Speech Community of East Harlem." *Sociolinguistics of the Spanish-speaking World: Iberia, Latin America, United States*, ed. by Carol A. Klee and Luis A. Ramos-García, 271-298. Tempe, AZ: Bilingual Press/Editorial Bilingüe.

Briggs, Charles L. 1986. *Learning How to Ask: a Sociolinguistic Appraisal of the Role of the Interview in Social Science Research. (Studies in the Social and Cultural Foundations of Language* 1) Cambridge: Cambridge University Press.

— "Learning How to Ask: Native Metacommunicative Competence and the Incompetence of Fieldworkers." *Language in Society* 13. 1-28.

Fairclough, Norman. 1992. *Discourse and Social Change*. Cambridge: Polity Press.

Gumperz, John J. 1982b. *Discourse strategies*. (*Studies in Interactional Sociolinguistics* 1) Cambridge: Cambridge University Press.

— 1982b. *Language and Social Identity*. (*Studies in Interactional Sociolinguistics* 2) Cambridge: Cambridge University Press.

Labov, William. 1972. *Language in the Inner City*. Philadelphia: University of Pennsylvania Press.

Milroy, Lesley. 1987. *Language and Social Networks*. 2nd ed. (Language in Society 2) Oxford: Basil Blackwell.

— 1987. *Observing and Analysing Natural Language: A Critical Account of Sociolinguistic Method*. (*Language in Society* 12) Oxford: Basil Blackwell.

Morris, Marshall. 1981. *Saying and Meaning in Puerto Rico: Some Problems in the Ethnography of Discourse*. Oxford: Pergamon Press.

Silva-Corvalán, Carmen. 1983. "Tense and Aspect in Oral Spanish Narrative: Context and Meaning." *Language* 59. 760-780.

— 1984. "A Speech Event Analysis of Tense and Aspect in Spanish." *Papers from the XIIth Linguistic Symposium on Romance Languages*, ed. by Philip Baldi, 229-251. Amsterdam: John Benjamins.

— 1988. "Oral Narrative along the Spanish-english Bilingual Continuum." *on Spanish, Portuguese, and Catalan Linguistics*, ed. by John J. Staczek, 172-184. Washington, DC: Georgetown University Press.

Stubbs, Michael. 1983. *Discourse Analysis: The Sociolinguistic Analysis of Natural Language*. (*Language in Society* 4) Chicago: University of Chicago Press.

Uber, Diane Ringer. 1993. "Mysticism and Spiritualism: Puerto Rican Narrative as Oral Literature." Paper presented at the XIV Conference on Spanish in the United States, University of Texas, San Antonio, October 8-10.

— 1995. "Narrativas directas e indirectas en el español puertorriqueño de Cleveland, Ohio, Estados Unidos." *El español de América: Actas del IV Congreso Internacional de 'El español de América'*, Tomo I, ed. by Alfredo Matus Olivier, et. al, 373-382. Santiago, Chile: Ediciones Mar del Plata.

— 1997. "La alternancia de idiomas en una comunidad bilingüe español/inglés en los Estados Unidos." *Perspectivas sobre la cultura hispánica: XV aniversario de una colaboración interuniversitaria*, coord. by John P. Gabriele and Andreina Bianchini, 405-420. Córdoba, Spain: Universidad de Córdoba.

Wilson, John. 1987. "The Sociolinguistic Paradox: Data as a Methodological Product." *Language and Communication* 7,2. 161-177.

VIII

HISTORICAL STUDIES

THE REALITY OF THE CLASSIFICATION "POETRY" FOR OLD ENGLISH

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In the world of western letters poetry has long been accept-ed as separate from prose, There is prose literature; there is poetic literature; each differs from the other by identifiable contrastive features. The validity of this dichotomy has not been debated in scholarly literature. Poetic syntax, form, and features are considered to be distinctly different from those characteristic of prose, or they are tacitly assumed to be so. However, a different situation exists for Old English literature. Most, if not all, of the features said to distinguish Old English poetry from prose also occur in the prose texts (Cassidy and Ringler 264-288), although to a lesser degree – a matter of quantity, not quality. This raises the question of whether or nota quantitative difference constitutes a real difference that can define a separate entity. If not, then Old English poetry is a variation of prose, albeit decorated prose. Therefore, the classification of Old English poems as poetry, in the usual definition of poetry, seems in error. If the poetry is not poetry, then it is prose narrative composed of non-periodic sentences, embroidered with the interplay of alliteration and line metrics, appositional elaboration, word order dislocation (reversed word order: noun + genitive, noun + adjective, pronoun + preposition, verb + subject, object + subject, direct object + indirect object), disjunction (insertion of outside words or phrases into unrelated syntactic units), synonomy, and wordplay. In other words, they are prose narrative accounts.

Not even the metrical patterns found in poetry are restricted to poetry. These are the metrical patterns defined by Sievers in the late 1800's that are considered by some to be the primary characteristic of the poetry. These patterns, however, because they are metrical patterns of clause syntactic units, e.g., one-syllabled words and multi-syllabled words in various combinations, are also found in the prose. They are inherent to the language and occur in all format The poetic line metric patterns vary because the words used to convey the message change as the message develops in the lines.

Various texts of Old English prose literature were analyzed and compared to a like investigation of the poetry to see if and how prose differs from poetry. Investigation reveals that both cover the same topics, e.g., feats of valor (*Beowulf*); historical accounts (*Voyages of Ohthere and Wulfstan, Anglo-Saxon Chronicles, Battle of Maldon, Battle of Brunanburh*); religious treatises and biblical exegesis (*Blickling, Ælfric*, and *Wulfstan's Homilies*; *Christ I, II, III*; *Genesis A*); religious biography (*Judith, Guthlac, Elene*); elegy (*Wanderer, Seafarer*); dream vision and biblical exegesis (*Dream of the Rood*); commentary, letters, and sermons (Wulfstan

Sermo Lupi ad Angles, Ælfric Preface to Genesis, the alliterative prose text Saint Oswald King and Martyr, Saint John the Apostle; King Alfred On the Advancement of Learning); translations (Genesis R, Orosius Historiae adversum Paganos, Bede Historia Ecclesiastica Genis Anglorum) .

The features and parameters of Old English poetic syntax were previously defined (Collins, 1995). The textual evidence supported the hypothesis that these features were used to maintain alliterative line patterning, that the alliteration originally served as a mnemonic device to jog the memory of the 'scop' in oral recitation, which later on developed into a poetic convention.

The current analysis reveals that the basic sentence structure used in both prose, including alliterative prose, and poetry is the long, non-periodic sentence, a product of the 'adding style'. This style results in the inclusion of parallel serial subject and/or object noun phrases as well as parallel serial adjectives, adverbs, genitives, verbs, verb phrases, and/or predicates, each carrying a meaning different from the others. The 'adding style' also includes the use of appositives that further define a preceding noun phrase, genitive, adjective, adverb, or verb, each providing a variation of the antecedent meaning (such as 'John, bravest of men').

The following passages from regular prose (1), alliterative prose (2), and alliterative poetry (3) illustrate the commonness of dislocation, disjunction, word play, synonymy, adjectival substantives, and usage of metaphor in all three forms.

> la) þpa ridon hie þider and his aldormon Osric and Wiferþ his þegn and þa men þe he beaeftan hiḿ laefde aer ond þone aeþeling on þaere byrig metton þaer se cyning ofslaegen laeg ond þa gatu him to belocen haefdon end þa þaerto eodon. *Anglo-Saxon Chronicles* 755
>
> [Then rode they hither; and his alderman, Osric, and Wiferþ, his thane, and the men, whom he left behind him before, and met the prince in the city where the king lay slain, and they had locked the gates to him and they thereto went.]

Analysis:

Dislocation:	verb/subject	'ridon, hie'
	verb 2/verb 1	'ofslaegen laeg', 'belocen haefdon'
	pronoun/preposition	'him to'
Serial Subjects:	'aldormon', 'Wiferliþ', 'þa men'	
Omitted Subject:	'ond [they] þa gatu...'; 'þaerto [they] eoden'	
Appositives:	'Osric'; 'his þegn'	

There was nothing in the prose that demanded dislocation, serial, or omitted subjects. Their use or non-use was writer's choice. The culture as well as the language permitted this.

The next two examples of prose are from a text written some 225 years after the first illustration.

1b) Johannes se godspellere cristes cyrling wearð on ðysuni daege to heofenan rices myrhðe purh godes neosunge genumen Ælfric *Saint John the Apostle* 1

[The evangelist John, Christ's darling, was on this day taken to the heavenly kingdom's joy through God's visitation.]

Analysis:
Appositive: to subject 'Johannes', '...cristes dyrling'
Disjunction: verb 1/verb 2 'weardð...genumen'

1c) rixode sum waelreow casere on romana rice aefter nerone; he waes domicianus gehaten cristenra manna ehtere...se waelreowa ne mihte þaes eadigan apostoles bodunge alecgan Ælfric *Saint John the Apostle* 20
[a certain cruel king ruled in the Romans' kingdom after Nero; he was called Domicianus, the Christian men's persecutor...the cruel (one) could not suppress the blessed apostle's preaching...]

Analysis:
Appositive: to subject 'dominicus': 'cristenra manna ehtere'
Disjunction: verb 1...verb 2: 'mihte...alecgan'; 'waes...gehaten'
Dislocation: noun/dem + adjective: 'Johannes se godspellere'
verb/subject: 'rixode sum waelreow casere'
Adjectival Substantive: 'se waelreowa' (the cruel [one])

The two prose examples of Ælfric do not differ from each other in the usage of the Processes of dislocation and disjunction. A comparison of the latter two with the Chronicle Annal indicates that the processes occurring in the three forms are the same.

The second type of prose, alliterative or rhythmical prose, was used only by Ælfric in some of his prose texts. However, this form does not meet the discernable alliterative criteria met in the earlier texts. The alliteration is erratic with no consistent pattern development and a less than absolute half-line/line structure that lacks a definitive metrical structure. These texts are decorated prose. Analysis shows that Ælfric's alliterative prose does not differ from his regular prose in that dislocation, disjunction, use of synonyms, weak adjective substantives, metaphoric language, and word play are all present and to the same degree. (Underlined word-initial letters in Old English poetic selections indicates line alliteration patterns.)

2a) and *w*urdon fela gehaelde
untrumra manna and eac swilce nytena...
Ælfric Saint Oswald King and Martyr 31

[and were many of sick men healed and also of animals]

Analysis:
Dislocation and Disjunction: adjective + genitive: 'fela... untrumra manna and.,,nytena'
Dislocation: verb + subject: 'wurdon fela'

2b) oð þaet man him fette of ðaere *f*oresaedan rode
sumne dael þaes meoses þe heo mid beweaxen waes,
and se *a*dliga sona *o*n slaepe wearð gehaeled
Ælfric *Saint Oswald King and Martyr* 36

[until one brought to him from the aforesaid rood some part of the moss with which it was overgrown, and the sick (one) soon in sleep became healed]

Analysis:
Dislocation: noun + genitive: 'sumne dael þaes meoses'
verb 2/verb 1: 'beweaxen waes'
Dislocation and Disjunction: pronoun + preposition: 'þe...mid'
Adjectival substantive: 'se adliga'

The short poem by Caedman, recorded by Bede, provides a poetic illustration.

3) Nu sculon herigean *h*eofonrices we~rd
*M*eotodes *m*eahte ond his *m*odegeþane
weore *W*uldorfaeder swa he wundra gehwaes
ece Drihten or onstealde
he aerest sceop *e*orðan bearnum
*h*eofon to *h*rofe *h*alig Scyppend
þa middangeard *ae*fter teode
ece Drihtan *ae*fter teode
firum foldan *F*rea aelmihtig
Caedmon's Hymn

[Now (we) shall praise the heavenly kingdom's Guardian,
God's power, and his understanding,
the work of the Glory-father, as He of each of wonders
– eternal God – the beginning created.

He first created earth for children,
heaven for a roof – holy Creator –
– the earth – mankind's Guardian –
the eternal Lord afterwards adorned
with men the earth – God almighty.

Analysis:

Ellipsis of subject 'we' in first sentence (the verb inflection '-on' indicates the plural number , which agrees in number to the omitted subject)

Serial Direct Objects, each having a different meaning:
'weord', 'meahte', 'modegeþanc', 'weorc'

OV Word Order: genitive + noun: 'heofonrices Weard', 'Meotudes meahte' , 'monncynnes Weard'
adjective + noun: 'ece Drihten' (2), 'halig Scyppend'

Dislocation and Disjunction: genitive + genitive + noun: 'wundra gehwaes...or'

Dislocation: noun + genitive: 'weorc Wuldorfaeder'
noun + adjective: 'Frea almihtig'

VO clause structure: 1a-3a; 5a-7b; 8a-9b

OV clause structure: 3b-4b

Appositives: to direct object 'eorðan': 'middengeard', 'foldan'
to direct object 'Weard': 'ece Drihten'
to subject 'he': 'halig Scyppend', 'monncynnes Weard';
to subject 'ece Drihten': 'Frea aelmihtig'

Synonyms: 'Weard', 'Meotodes', 'Wuldorfaeder', 'Scyppend', 'Drihten', 'Frea';
'eorðdan', 'middangeard', 'foldan';
'Bearnum', 'monnecynnes', 'firum';

The alliteration in lines 2a and 3a indicates that the word order for genitive phrases is 'optional. Alliteration requirements did not demand a specific word order. However, for 'Frea aelmihtig' dislocation is necessary because of the alliteration requirement that only the arsis or 1st stress of the b-line alliterates (e.g,, the 3rd stress of the line).

Word play and synonymy occur in Old English poetry and prose alike. They work together. The interaction of identical meanings to different roots or of root commonality to unrelated meanings brings about word play. The following examples illustrate the prevalence of the occurrences of punning or word play and the different types found in the Old English texts.

4) balanced or contrasted use of two words with the same root but different meanings:

(a) godes gerihta mid rihte (God's dues rightly)
Wulfstan *Sermo Lupi ad Anglo* 31

5) balanced or contrasted use of two words with the same meaning but different roots

(a) gecnawe se þe cunne (should know who knows)
Wulfstan *Sermo Lupi ad Anglo* 40

6) combination of 4 and 5 above in the same clause

(a) forsyngod þurh maenigfealde synna and þurh fela misdaeda þurh morddaeda and þurh mandaeda Wulfstan *Sermo Lupi ad Anglo* 106
[corrupt through abundant sins and through many misdeeds, through murderous deeds and through evil deeds]

7) Metaphor/Imagery

(a) 'uhtsong' [dawn song = matins] Bede *Caedmon* 96
(b) 'Cristes rodetacne' [cross, as a Christian symbol] Bede *Caedmon* 96;
(c) 'hreran mid hondum' [touch with hands = to row] *Wanderer* 4
(d) Her waeron rede forebecna cumene ofer Norþanhymbra
land, and þaet folc earmlice bregdon, þaet waeron
ormete *ligraescas*, and waeron geweowene *fyrene dracan*
on lyfte fleogende. þam tacnum sona fyligde mycel
hunger. *Anglo-Saxon Chronicles* 793
[Here were dire portents/forbeacons come over Northumbria's land, and badly terrified the folk: that were huge lightning rushes, and fiery dragons/comets were seen flying in the air. Great hunger soon followed the tokens.]

This short passage illustrates the effective use of metaphoric language and imagery, not at all uncommon in both prose and poetry.

The passage below, a paraphrase based on a modern translation, provides us with the most striking metaphor found in Old English prose and poetic literature, written by Bede about the conversion of King Edwin.

8) A sparrow flies in the door to get away from the storm outside, it flies through the warm and lighted room, and back out through another door into the storm in the twinkling of an eye. Bede equates this with man's short life, coming from the unknown into the warmth of life, and after a brief time, going out into the unknown by reason of death. Bede *historia ecclesiastica*

gentis anglorum Book II, Chapter X, 130ff

This metaphor appears in the song *A Bird of Passage* (lyrics by Maxwell Anderson, from the modern musical *Lost in the Stars*, based on Alan Paton's novel Cry the Beloved Country).

9) A bird of passage out of night
Flies in at a lighted door,
Flies through and on in its darkened flight
And then is seen no more.
This is the life of men on earth;
Out of darkness we come at birth
Into a lamp-lit room, and then
Go forward into dark again.
Maxwell Anderson

Punning or a play on words is widely used in Old English writing, and particularly the use of doublets made up of synonyms, homophones, homonyms, and paronyms.

10) Doublet Synonyms:
  a) 'gemaered ond geweorðed' (glorified and honored)
  b) 'þa fers ond þa word' (the verse and the word)
  c) 'monade ond laerde' (urged/exhorted and urged/exhorted)
  d) 'song ond leoð' (song and song)
  e) 'þa gelaeredestan men ond þa leorneras' (most learned men and scholars)
  Bede, Book IV, Chapter XXIV *Caedmon* 11.2, 27, 44, 53, 58
  f) 'werig mode' (weary mind) / 'se hreo hyge' (the troubled mind)
  Wanderer 15

11) Doublet Homophones:
  a) 'mid þam aelmihtihgan *gode* for his *godnysse*' [with the almighty God for his goodnessl
  Ælfric *Saint Oswald King and Martyr* 278
  b) 'his lic wearð *bebyrged* [his body is buried in the same townJ
  Ælfric *Saint Oswald King and Martyr* 140

12) Doublet Homonyms:
  a) 'baer man þam *cyninge cynelice* penunga' [a man bore to the king kingly/royal obeisance]

Ælfric *Saint Oswald King and Martyr* 89

13) Doublet Paronyms:

a) 'þaes cyninges *swyþran* hand mid swiðlicre blysse' [the stronger/right hand with greater bliss]

Ælfric *Saint Oswald King and Martyr* 99

Current analysis shows that the syntactic features of dislocation and disjunction in no way constitute a 'syntax' reserved solely for poetry; they are almost as common in prose. The various stylistic and rhetorical features are almost as prevalent in the prose texts as in the poetic texts. The use of multiple synonyms, adjectival substantives, dislocation, disjunction, and a combination of dislocation and disjunction gave variation to both prose and poetic texts – a much valued situation. The fact that there are no distinguishing features restricted only to poetry supports the argument that Old English poetry is really a variety of prose. All the features found in the poetry also occur in the prose.

When appositives are removed and a clause made up of only a predicate is fleshed out with the gapped material, the result is a long, nonperiodic sentence that is like those found in prose. Without the adornment of the appositives and half-clauses, the poem becomes just a prose treatise. This can be seen below where *Cademon's Hymn* is so treated:

14) Now [we] shall praise the heavenly kingdom's Guardian, [we shall praise] his understanding, [we shall praise] the work of the Glory-father, as He of each of wonders (appositive omitted) the beginning created. He first created earth for children, with heaven for a roof (appositive omitted). The eternal Lord afterwards adorned with men the earth (appositive omitted).

That which is called Old English poetry today in the literature could more accurately be called a variation of Old English narrative prose or even free verse. No person in Anglo-Saxon times ever saw the poetic form printed in texts today. It is possible that the printed form causes us to define *Beowulf*, *Judith*, or *Christ*, for example, as poetry, and not the content or linguistic structure.

To say "more" defines a genre strains credulity.

REFERENCES

Aelfrdian translations of Orosius' *Historiae adversum Paganos* and Bede's *Historia Ecclesiastica Gentis Anglorum.*

Anglo-Saxon Poetic Records. 1932-1953. G.P. Drapp and E. van Kird Dobie (eds.). A collective edition of the extant poetry in six volumes. New York: Columbia University Press.

Cassidy, Frederic G., and Richard N. Ringler (eds.). 1971. *Bright's Old English Gammar and Reader.* 264-288; the introduction to each prose piece.

Collins, Janet Duthie. 1996. "Analysis of Old English Poetic Syntax." *LACUS Forum* 22.183ff.

Early English Text Society volumes of *Wulfstan's Homilies, Aelfric's Homilies, Blickling Homilies*

Ker, W.P. 1896. *Epic and Romans: Essays upon Medieval Literature.* New York: Dover. [1957 edition]

THE LEXICAL INCORPORATION AND GRAMMATICALIZATION OF THE UTO-AZTECAN WORD FOR *HAND* IN TARAHUMARA

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0. Introduction

Attempts to understand and describe the synchronic interrelations of the lexical and grammatical forms of a language inevitably come to include reasonable inferences about their historical development. In the absence of written records we are never sure about earlier states of affairs and paths of development, and even *with* written records the data and conclusions are subject to interpretation and disagreement. Still we continue to do historical work, applying the methods of historical linguistics and seeking reasonable hypotheses that are based broadly on comparisons, typological generalizations, and universals of language. We insist that work, in order to be credible, must be based on well established principles of language change and methods of reconstruction. Ever since the Neo-grammarians, the troika of sound change, analogy, and borrowing have been seen as the major mechanisms of language change. But during the last decade the mechanism of grammaticalization has increasingly come to take its place as a fourth major mechanism, expanding the scope of inquiry, and licensing a whole new body of research. The term reaches back to Meillet and refers to the view that grammatical elements in a language typically have their genesis in the lexicon. A strong version of the theory postulates that all grammatical elements arise unidirectionally from lexical elements. In principle, the theory states that some words, or word sequences, gradually lose their independent lexical status, are bleached of their semantic meaning, ritualized by repetition, reduced phonologically, and come to code grammatical functions. In the later stages of the process, lexical items may first become cliticized, clitics may become bound forms, and bound forms may be lost by incorporation or by reduction to zero. In a similar process, lexical items may become fused with contiguous morphemes, disappearing as separate elements, and retaining but a wispy historical trace of their original status as content lexemes. At any given synchronic stage, a language exhibits elements and patterns that are at various stages of the grammaticalization cycle; some words are emerging from word complexes, some grammatical elements are emerging from lexical elements, some grammatical elements are being further reduced. Lexical and grammatical structure can thus be seen as dynamic rather than static, and any attempt to understand the phenomenon thus requires an understanding of the ongoing micro-history of the language. Exclusively synchronic constructs like morpheme stop short of this goal in language description.

In this connection I want to tell a story about a phonological shape *ma* in Tarahumara, a Uto-Aztecan language spoken in Northern Mexico. The free form *ma* is often clearly the reflex of an earlier pan-Uto-Aztecan word for 'hand'. In Tarahumara it has been replaced (as the name for the body part) by the term *seka-ra*, so that nowhere in Tarahumara does the isolated form still occur as the word for 'hand'. The form is reconstructable for the family by application of the method of external comparative reconstruction. But the phonological traces of * *ma* (together with its morpho-phonological variants *pa* ~ *ba* ~ *ma* ~ *wa* ~ *a*) are widely represented in the lexicon and grammar of Tarahumara, and they are sometimes found in places that do not necessarily line up with our expectations. The presence of the scattered phonological traces of **ma* internally within the language is detectable only by the method of *internal reconstruction*. It will be apparent that only the application of the two methods of reconstruction, in tandem, facilitates an understanding of the history of **ma* and its synchronic functions in the language.

The suggestions that I want to make here about the history and identity of the current reflexes of *ma* will be based on principles of semantic change, and grammaticalization theory (Greenberg 1991). As stated above, these processes do not always result in the total loss of a form, i.e. reduction to phonological zero, but may result only in the loss of separate phrasal or morphemic status (incorporation). Examples abound (for example, in English the word *handy* is, in spite of its bimorphemic history, a form that most of us would analyze synchronically as a single lexical morpheme). This process is a major source of words in the world's languages (cf. Hopper 1990). As stated above, the evidence is from both internal and external reconstruction.

*1. Lexical Incorporation of * ma*

Lexical adaptations of **ma* in Tarahumara encompass a number of semantic fields, including among others, *measuring, counting, body parts, manual instruments, events*, and *deixis*. In its synchronic *lexical* reflexes, * *ma* no longer ever occurs as a free form. In all of its occurrences as a recognizably incorporated phonological part of a referential form, it has colexicalized with an adjacent form, resulting in the emergence of a single lexical morpheme. Let us now consider some examples.

1.1. Expressions of Quantity. Consider first the occurrence in Tarahumara of the reflex of **ma* in derivations expressing measures of quantity. The hand obviously provides a handy instrument for measuring small quantities or expanses. Some of these measures have been lexicalized in derivations that earlier involved the word for hand in Tarahumara, for example in *makomi*, handful; and in *maka-ri*, a span (measure: width of the back of the hand). Likewise in the decimal numeric system of Tarahumara, for example in the words for five, ten, etc., the traces of * *ma* can be observed, cf. Table 1 (on the following page).

ki- in *kimakoi* is historically a morpheme used in counting. Its traces are apparent in forms like *ki-pu*, 'how many', and probably also in the word *peikia, (*pe-iki-a)* 'three'. It often functions now as an attenuator, as in *ke'me* 'hardly' (**iki-'me*). In the word for nine, with a meaning of something like **almost**, it serves to diminish the co-occurring value, deriving 'nine' from 'ten'.

In all of these expressions of measurement, the erstwhile free lexeme * *ma* 'hand' has lost its status as an independent lexical form and become merely part of a larger morph. Essentially it has been reduced to being a mere phonemic syllable, and is recognizable to us as a reflex of **ma* only by internal reconstruction. Thus in the numerals, the phonological sequence *ma* is no longer recognizable as a separate morph in Tarahumara.

Table 1. Some Numerals in Tarahumara

CARDINALS	**ORDINALS**
1. *mari* **five**	1a. *mari-sa* **fifth**
2. *makoi* **ten**	2a. *makói-sa* **tenth**
3. *makoi biré* **eleven**	3a. *makoi siné* **eleventh**
4. *ki-makoi* **nine**	4a. *ki-makói-sa* **ninth**
5. *makoi ma - ri* **fifteen**	5a. *makoi mari-sa* **fifteenth**
6. *mari - sa makoi* **fifty**	6a. *mari-sa makói-sa* **fiftieth**
7. *makói-sa makoi* **hundred**	7a. *makói-sa makói-sa* **hundredth**
8. *mari-sa makói-sa makoi* **five hundred**	

1.2 Body Parts. Similarly, incorporation is apparent in all of the nominal reflexes of * *ma*. As the general Uto-Aztecan word for hand, it has been replaced by *sekára*, but the words *makusa* and *mahta-ga-ra* for 'finger' and 'palm' still manifest the fused *ma* sequence.

1.3. Manual Tools. Likewise the phonological reflex of **ma* is found as a desemanticized sequence in many lexical items for *objects* that instrumentally involve use of the hand, for example *mahtaka*, 'metate', and *mahtasura*, 'grinding stone' (mano).

In attempting to make sense of the synchronic forms in the language as being products of their history it is apparent that these forms contain fused or weakened traces of the earlier form * *ma*, meaning 'hand'. It is also quite clear that Tarahumara speakers no longer directly associate the syllable *ma* in these words with the body part.

The diachronic explanation involves, for example (cf. Figure 1), the metonymic extension of the term for the **Executor** *ma* (hand) of the **Event** *batuma* (grinding) to designate the **Instrument** *mahtaka* used in the process (grinding stone).

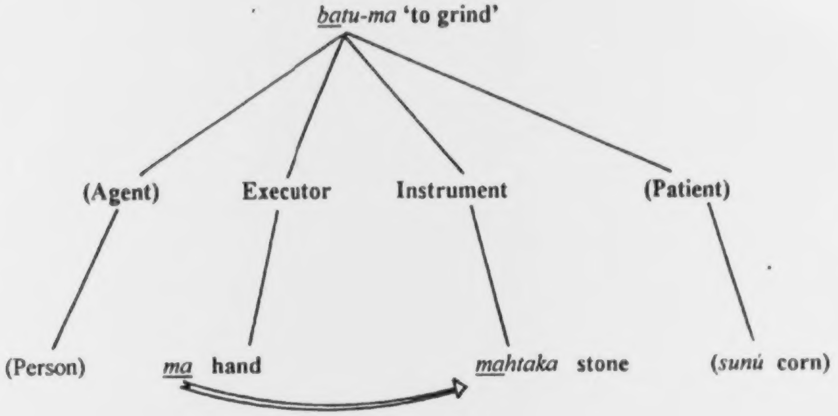

Figure 1

1.4. Objects Metonymically Associated with 'hand'. Similarly, other objects that are metonymically associated with 'hand' in the culture show incorporated reflexes of **ma,* for example: *makáwa-ra*, 'cuff' (of a long sleeve blouse), sleeve band. A few terms are also attested in Tarahumara for similarly derived names for *qualities* and *manners,* for example: *makarí* (ma-a'ká-arí), 'open handed(ly)'.

1.5. Verbal Events with the Hand as Executor. Many lexical verbs, that code events involving use of the hand(s) as Executor of an action, still show lingering phonological and semantic echoes of * *ma* in coalesced forms as historical residue. Here, as was the case above with numerals and manual objects, it is also doubtful that the semantic resonance of *ma* 'hand' is still cognitively identifiable for speakers, as it must have been in the original derivational coinages. Some examples are given in Table 3 (on the following page).

This table contains only a sample list of *executor incorporation* (in many cases there is a physical instrument involved in addition to the hand as Executor). This kind of incorporation is a frequently identified phenomenon in Uto-Aztecan languages (Givon 1996).

Table 3. Lexical Verbs with Echos of *ma*

Pointing:	1. *mahowa*	**to point to, to point out** ☞
Placing:	2. *mana -ma*	**put, place** (with the hand)
	3. *mana-ma*	**make** (corn) **beer** (grinding)
	4. *maní*	**place, arrange** (with the hand)
	5. *manaso*	**manually scattered, disarrayed**
	6. *maco-ma*	**place the hand** (in something)
Grabbing:	7. *mako-ma*	**clutch with the hand, seize**
Carrying:	8. *mato-ru*	**carry** (holding on the shoulders)
	9. *ma, mea*	**bring , fetch, carry**
Clapping:	10. *mata*	**applaud, clap**
Hitting:	11. *macoco-ma*	**pound** (with the fist)
Grinding:	12. *batu-ma*	**to grind** (by hand)
Extracting:	13. *ma'ci-bu-ma*	**to take out, extract** (by hand)
Giving, paying:	14. *mahteta*	**hand over, give payment in kind**
Thanking:	15. *mahtatera ba*	**give thanks** (gesture of gratitude)
Requesting:	15. *mahtetera ba*	**please!** (polite request)

In the case of *mahowa*, 'to point,' which is shown diagrammatically in Figure 2, the name for the hand as Executor of the pointing event is extended to the event itself and becomes part of the name of the event.

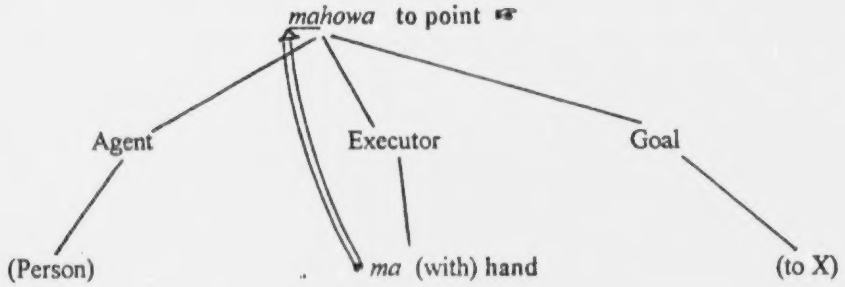

Figure 2

2. Deictic Pointing (from physical to verbal gesture)

Now we come to the main point of this paper. Psychologically the hands constitute a disproportionately large share of our internal image of our own body. As humans we are tremendously aware of hands, and we use them powerfully in our verbal communication. Manual gestures are ritualized differently in different cultures, so that in learning an alien language we inevitably also have to learn the accompanying gestural code. Universally we use the hands gesturally to code *sizes* and *shapes*, and *motions* and *locations* and also importantly in *deictic* functions to *point to* and to *demark boundaries*.

Physical deixis (e.g. pointing with the hand) is often accompanied by concomitant *verbal deixis*. The importation of gestural (pointing) functions into verbal language by extension of the medium of reference from *manual* to *verbal* is apparently a cultural universal, but the paths that such transfer takes are quite language specific. Once the verbal expression for (the *Executor* of gesture) is functionally associated with the physical gesture, a new lexeme has been coined by metonymic association. Such lexemes are then subject to the same inexorable processes of relexification and grammaticalization that lexemes from any other source undergo.

In Tarahumara the free form *ma*, when used with *hand pointing* (represented here as : + ☞), functions as a deictic to identify shifting spatial referents. On the surface, the *hands* would seem universally to be a logical association as a source notion for the coding of deixis. And yet, studies have not yet identified large numbers of the world's languages that have clearly exploited the words for hand or finger to create demonstratives. At least in Tarahumara this seems clearly to be the case.

1. *ma!* + ☞
Here!/There!

The strong tendency of grammaticalization to be unidirectional predicts that *spatial deixis* is always the source of *temporal deixis*. The mechanisms that are adopted for coding spatial reference are typically extended by analogy for coding temporal reference. Thus we have the Tarahumara temporal deictic:

2. *ma!* [+ ☞]
Now!

In the temporal usage, the speakers are somewhat less likely to accompany the verbal expression with a manual gesture (hence the use of brackets in example 10 to indicate optionality), but frequently they do.

2.1. Grammaticalization of Deictics. Up until now we have considered diachronic extensions of the use of the reconstructed word for 'hand' in patterns of *lexicalization*. We now turn to instances of *grammaticalization* involving the same etymon * *ma*. It is important to keep in mind that each of the examples presented here is taken from real spoken texts in cultural contexts.

We have seen that novel linguistic forms may result from the incipient association of iconic *physical* deixis (gestural) with *verbal* deixis (lexical). The novelty is seen in the recruitment of the extant word for 'hand', as the Executor of the deixis, subsequently then to code the deixis itself. Once lexicalized, the forms of the word for 'hand' are subject to further extension and grammaticalization. Thus we can identify various grammaticalized reflexes of *ma* in Tarahumara that have emerged to code aspectual functions. The metonymic extension of the spatial deictic *ma* to code *temporal* reference, can be seen for example in the aspectual uses of *ma* that mark progressive and completive aspect. The point of reference is to a temporal boundary, either pre- or post- speech time that has been selected for salience in the proposition. The form *ma* is used metaphorically to **point to** the boundary in question. The notion of aspectual boundary is of course itself a metaphorical extension from a physical (spatial) source. Traces from the Tarahumara data indicate a chain of developments. Some of these are schematized in Figures 3-5, but first let us consider further the evidence.

2.2. Grammatical Pointing to Temporal Boundaries: Tense/Aspect. For propositions that are narrated in *present time* and *past time*, the free form *ma* functions to code tense/aspect distinctions in the verb phrase for states and events in progress at *Speech Time* (ST). The metonymic use of the linguistic form *ma*, still distantly echoing the metaphoric manual gesture, **points** in each case **to** the temporal boundary that has been or is to be crossed, highlighting and coding the most salient event contours.

2.2.1. Clause Initial Ma with Ongoing Events/States. The normal position of the free aspectual particle *ma* (for present events/states) is clause initial (but cf. example 13). In each of these cases *ma* points to the event-initiating boundary that has already been crossed at Speech Time, while the event is still ongoing or the state is still in force, cf. examples 3-5 and Figure 3.

3. ***ma*** *ne ana'i behté pa*
now 1sg here live Junct
I live here *now*.

4. ***ma*** *ne gará bosá pa* !
Perfective I well full Junct
I'm full!

5. *a'riko binó* ***ma*** *ku-simi-am pa...*
soon he starts to again-go-Nomz Junct...
Pretty soon he *starts to* leave ...(historical present)

ST = ET
---------|-----------'**now**'

(Speech Time = Event Time)

Figure 3

2.2.2. Clause Initial Ma in Completed past Event. For events and states narrated in past time the free form *ma* **points to** the boundary of completion prior to reference time (default = Speech Time). The sense is similar to that of English 'already'. The free form *ma* (for completed past events/states) likewise occurs in clause initial position. Examples 6 and 7 illustrate this perfective function of the free particle *ma*, cf. also Figure 4.

6. ***a*** *ne batari newa-am pa*
Perfect 1sg teswino make-Nomz Junct
I have *(already)* made the beer.

7. ***ma*** *suwi pa*
Completive finish Junct
(S/he) has di*ed*.

ET ST
------|----------|--

(Event Time prior to Speech Time)

Figure 4

2.2.3. Verb-suffix -Ma in Coding Unrealized Events. Events and states with an *Event Time* (ET) that is uninitiated (i.e. unrealized) at *Speech Time* are normally coded with the verbal suffix *-ma* or *-méa* when stressed (showing breaking). Since the verb *mae-ma*, 'believe' suggests a source for irrealis and/or future, it is possible that the grammaticalizing lexical parent of the bound suffix *-ma* is distinct from that of the free form *ma*. But it is quite possible that the source of the seeming homonyms is ultimately the same, with different paths of grammaticalization. It is clear that the *-ma* suffix, coding non-initiated events/states is a relatively late innovation, i.e. within Southern Uto-Aztecan. Under the assumption that the suffix *-ma* has developed from the same source as the free aspectual particle *ma* (from 'hand' via the deictic function), the suffixing *-ma* can be seen as **pointing to** the initial boundary of the mentioned event/state, that is as yet unrealized at Speech Time, cf. example 8 and Figure 5.

8. *re'pari mana-**ma** pa ra'ne-ra-ka ba*
up put-Fut rifle (thunder Nomz) Junct
He *is going to* put the rifle up there now.

```
ST          ☞ ET
--|-----------|----------
```
(Unrealized, Non-initiated event)

Figure 5

2.3. Grammatical Pointing to Discourse Boundaries: Conjunctions, Relatives, Endpoint Markers, Particles. A further development is seen in the progressive grammaticalization of *ma* for pointing to discourse boundaries: conjunctions, relatives, endpoint markers, and other discourse particles.

2.3.1 Conjunctive Functions of ma. The path of metonymic extension goes from **'now'** to **'and now'** to **'and/also'** (coding sequentiality or linking propositions and other conjoinable discourse segments, and leading to increasing generalization within ever broader contexts (cf. examples 9-18, below).

First, consider some examples of the additive conjunction *ma*, 'and now', 'and' (items 9-12).

9. *nahtetera ba **ma** ne ku-isá ma ré pa*
thanks Junct and now I again-rest now Mod Junct
Thank you. *And now* perhaps I'm going to go back to resting again.

10. *...kin si'á **ma** sinéuma ná ma-pu-ikí hu pa e'témara ba...*
...my father-in-law Conj all Rel-33 Vcop Junc family Junct...
..my father-in-law, *and then* everyone who is part of the family ...

11. *Pasiko* ***ma*** *Sahwani.*
Fransisco *and* Juan.

12. ...***ma*** *simi-a pa noke-am pa...*
...and go-Pres Junct move-Nomz Junct...
...***and* he's leaving, moving away**...

Similarly, the form *ma* has colexicalized with other grammatical forms, to express spatial and temporal conjunction in spoken discourse (cf. Copeland 1991). Example 13 contains relevant occurrences of Tarahumara ***mapu-goná***, 'where', a spatial conjunction, and ***ma***, 'then after that', a temporal conjunction.

13. ***ma*** *me'a-re mi ga'ó mapu-goná behte-re wa'ru-be-ra...*
Conj kill-Past over there Conj-Loc live-Past big -Intens- Nomz
***Then after that* they killed the giant over there** (up in front of the cave) ***where* he lived.**

Examples 14-16 illustrate additional forms containing reflexes of *ma* that code more specialized temporal linkages of propositions: *mapu-a'rí*, 'when' (same time), *mapu-sí*, 'until, when', and ***ma***, 'since'

14. ....*ke na'awa-ga mapu-a'ri tum bahí*
...Neg quarrel-Cont Conj-Simul you drink
(...said,) not to fight, *when* you drink...

15. *pacá 'nina ahtí mapu-sí másimi ko ba*
inside prefer sit (T_1) Conj-T_2 leave
(The spirit) **had better stay inside** (grave), ***until* he goes away.**

16. ...*ma-tam go ocer-am ba ne*
...since-we-Tp grow-Nomz Junct Part
...***since* we are so old.**

A further development is seen in the progression from temporal to causal conjunction. It is of course well known that forms used to signal a temporal association of events/states may become reanalyzed to code a causal association, e.g.

Tarahumara ***ma**pu-gita*, 'in order that', 'because', (cf. examples 17-18).

17. *sepi waki-gá irí pa we'é* ***ma**pu-gita* *sinéoma napai-bo pagótuame*
Intens dry-Stat be Junct soil Conj-Inst all gather-Fut people
The earth is very dry, *so* all of people (we) come together...

18. *tam 'nina ci 'á kiri awa-ra ba* ***ma**pu-gita* *nehé o'rú kam pa*
me preferably me give horn-Poss Junct Conj-Inst I big Vcop Junct
You'd better give me your antlers, *because* I'm big.

2.3.2 Relative Particle. One grammaticalized form of *ma* functions as a relative particle, which, either alone or in construction with a post-clitic pronominal form coding person and number agreement with the antecedent, introduces relative clauses in Tarahumara. In this case *ma* **points to** the antecedent of the relative construction, cf. Table 7 (the separate plural/distributive forms for first and second person are not given here).

Table 7. Relatives Containing the Particle *ma*

ma-ne	**(I) who**	(Rel Pn)
ma-mu	**(you) who**	"
ma-pu	**(s/he/it) who, that**	"

Examples 19-21 illustrate the use of the particle *ma* in Tarahumara for introducing relative clauses.

19. *ko hu aré pa* ***ma**-ne civa me'á-re* ***ba***
I Vcop Mod Rel-I goat kill-Past Junct
Maybe I am the one *who* killed the goat.

20. *....muhé,* ***ma**-mu ma suwi-reke éera ba ...*
...you, Rel-Pn Perf die-Past mother Junct ...
...**you, *who*se mother died**...

21. ***miná mukí huku*** ***ma**-pu uwa ra'ica-re rehoi ko* ***ba***
that woman be Rel-she with talk-Perf man Junct
That is the woman *whom* the man talked to.

It is important to note again that in some cases the relative particle alone introduces the relative clause without an accompanying person and number specifying pronominal stem.

2.3.3 Discourse Particle Functions. A still more advanced development is seen in the frequent occurrence of *ma* as a general discourse particle in Tarahumara, punctuating the discourse and at times merely providing a hesitation filler that also simultaneously echoes the more propositionally oriented functions associated with *ma* introduced above. Example 22 illustrates the use of *ma* as a discourse particle similar in function to the English discourse particle/ hesitation forms, 'well', 'wəl-then'.

22. ...cihóonsago hipi 'wirí awe-a regá ena koáci-go
...hence now long antler-Cont Mod walk headgear-Tp
... (the deer) now walk around contentedly with long antlers on their

ganírea ***ma*** berá we ku-moia pa
content well truly Intens again-climb Junct
heads. *Well*, it's true. After this, they climbed back up (went home).

3. Summary

Tarahumara presents an intriguing linguistic landscape for understanding the synchronic distribution and functions of apparent homonyms like the various forms of *ma*, i.e. the suspected reflexes of the Uto-Aztecan word for hand. Of course not all of the occurrences of the phonological sequence *ma* are related to this etymon. The path of development proceeds initially from an association of manual gesture (pointing), signifying 'here!', with the word for the focal body part itself. The result of the association is a lexicalization of the physical gesture, metonymically employing the word for the *Executor* of the gesture, i.e. *ma*, 'hand'. Once the first step is taken and a new lexical form is created, e.g. *ma*, 'here', the new form is then subject to all of the grammaticalizing forces that normally assault such lexical items in the languages of the world. In the case of Tarahumara *ma*, the continuing lexicalization process has extended the spatial reference to a temporal one, and subsequently the process of grammaticalization has further extended the form to code aspectual and conjunctive distinctions as well as other discourse functions. The overarching commonality of the grammaticalized functions is the notion of *pointing* -- initially *physical* pointing with the hand. Subsequently the notion of pointing surfaced in the language as *lexical* pointing, coded by linguistic forms containing traces of the word for hand. Further along, the notion of pointing shows up again as more clearly *metaphorical* -- pointing to a whole array of *grammatical* topographies, including temporal and aspectual boundaries as well as various types of discourse junctures, cf. Figure 6 (on the following page).

Methodologically it is first necessary to reconstruct the proto form for 'hand' by the comparative method in order to establish the Uto-Aztecan source form, which no longer exists in Tarahumara. Accordingly *ma is reconstructed for 'hand'. Subsequently it becomes apparent that the multilayered traces of the etymon are evident only from internal reconstruction. The method allows the identification of those *ma* phonological sequences that are likely reflexes of the proto word for hand. The method naturally excludes the larger number of *ma* sequences in the language as fortuitous.

Iconic Gesture ☞ **POINTING**

Physical ☞ => Lexical ☞ => Grammatical ☞ => Textual ☞
Deixis Spatial Temporal Discourse
Deixis................ Deixis
Lex *ma* 'here' **Lex** *ma* 'now'
Boundaries:.......................Boundaries:
aspectual: conjunctional:
Gram *ma* 'now/already' **Gram** *ma*- 'and/ where'
Gram -*ma* 'future time' relative Particle,
hesitation Particle
Gram *pa*/*ba*
Junctural: 'endpoint'

Figure 6

Further, we have seen from a limited set of data from actual Tarahumara spoken discourses that by internal reconstruction we can trace many of the developments that have resulted in a chain of layered reanalyses of the Uto-Aztecan word for hand. The form *ma* has been incorporated by metonymy into many lexemes that show a natural relationship with the body part. In other cases, by reason of its association with *manual gesture*, the form has been recruited further to perform specific grammatical tasks, including spatial/temporal deixis, tense/aspect distinctions, conjunction, and relativization. The lexical and grammatical traces of the source lexeme, which remain in the language, continue to coexist and document a layered network of developments. Understanding the source and the multiple paths of grammaticalization of this form enables a fuller appreciation of the synchronic structure of the language, and contributes to our growing understanding – of language change and of the evolution and functions of grammar.

REFERENCES

Copeland, James E. 1988. "Comparisons of Similarity in Tarahumara." *LACUS Forum* 14, 248-60.

— 1990. "Intensification, Contrast, and Metaphor in Tarahumara Comparisons of Dissimilarity." *LACUS Forum* 16, 335-45.

— 1991. "The Relativizing Complementizer **mapu** in Tarahumara Discourse. *LACUS Forum* 17, 95-205.

— 1992. "Tarahumara Reduplication: the Grammaticalization of Iconic Intensification." *LACUS Forum* 19, 313-35.

— 1993. "Unmotivated Free Alternation in Tarahumara: the Principle of Emergence in Phonology." *Language Sciences* 16,1:213-27.

— 1994. "Variation in Language and Culture: the case of Tarahumara." *LACUS Forum* 20, 5-30.

— 1996. "The Copula in Tarahumara: Paths of Grammaticalization." *LACUS Forum* 22, 157-66.

— 1997. "On the Tarahumara Particle **pa**: an Optional Mode of Delimiting Information Segments." *LACUS Forum* 23, 313-24

Givon, T. 1996. "La gramaticalización de verbos a posposiciones en ute." *Tercer Encuentro de Linguística en el Noroeste. Tomo I. Lenguas Indígenas.* Hermosillo:Universidad de Sonora. 2, 359.

Greenberg Joseph H. 1991. "The Last Stages of Grammatical Elements: Contractive and Expansive Desemanticization." In: *Approaches to Grammaticalization*, vol. I., ed by Elizabeth Traugott and Bernd Heine,301. Amsterdam: Benjamins.

Hopper, Paul, 1990. "Where do Words Come From?" In: *Studies in Typology and Diachrony for Joseph H.Greenberg*. ed. by William Croft et. al., 151-160 Amsterdam: Benjamins.

Lamb, Sydney. 1959. "Some Proposals for Linguistic Taxonomy." *Anthropological Linguistics* 1, 33-49.

LINGUISTICS APPLIED

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The study of Afroasiatic (AAs) and, by extension, Lislakh (AAs plus Indo-European [IE]) offers us a unique opportunity to apply the comparative method to a group of languages which include some of unparalleled, attested, time depth. While there remains a great deal to be done before there can be a really reliable set of reconstructions, the results thus far are encouraging. It is appropriate at this time to review the linguistic procedures used in such reconstruction. The steps taken by researchers in the field are in general the traditional ones, but at several points there have been stumbling blocks. Three recent works have set up extensive lists of reconstructed AAs lexemes. These are Orel and Stolbova (1995), Ehret (1995) and Bomhard (1994). The last does so within the broader framework of Nostratic, but the AAs reconstructions are done separately, as are others (including IE), and then compared with others. Each of these three studies has, in its treatment of AAs, serious flaws. I here set out what I consider to be the essential steps to be taken in reconstructing AAs or LL roots (or 'bases', as I prefer to call them). Along the way I shall point out some of the places where others have gone astray. By making scholars aware of these shortcomings, I hope to help them use these works intelligently.

Two other studies should be mentioned, Obenga 1993 and Levin 1995. The former rejects AAs as a valid linguistic grouping (1993.373) but relates Egypto-Coptic to most languages of subsaharan Africa. Levin's purpose is to show samenesses between Semitic and IE without dealing at this stage with genetic cognates. His procedure doesn't fit into that described here, though his data are highly relevant to the problem of genetic relationship and are given in exquisite (there is no other word) detail. They need to be integrated into the overall presentation of Lislakh.

To the above studies I add my own work, scattered over many articles. This presents, either briefly or in greater detail, over one hundred AAs and LL bases. These reconstructions, and others in press or in the file cabinet, result from application of the following procedures:

1. Assemble a core vocabulary list.

2. Using this list, assemble lexical data from the languages involved.

3. To the extent feasible, check the phonetic accuracy of these data.

4. Assemble sets of likely cognates from these data.

5. Set up regular sound correspondences on the basis of these sets.

6. Assemble sets which appear to be related but which have irregular correspondences.

7. Form hypotheses by which irregular correspondences can be explained.

8. Isolate affixes from bases.

9. Reconstruct proto bases, assigning affixes to bases where feasible.

These steps seem obvious, but they are not always followed – hence this discussion. Each of the above will now be discussed.

1. Formation of a basic wordlist. My list of 310 items is a composite of others' lists and has been published (Hodge 1987a). A longer list (500), very systematically arrived at, is that of Lionel Bender, made available to me (in mimeograph from) some time after I had assembled and used my own. And there are others. In this set of procedures the list is used as a tool for gathering etyma for comparison, not for glottochronological purposes.

2. Assemble data from each of the branches of AAs (or LL) for as many of these core items as possible. Use reconstructed etyma of the branches where available. Where advisable add attested forms illustrating the reconstructions.

One advantage of the use of core vocabulary is that it helps to eliminate loans. Loans are here defined as borrowings from other languages subsequent to the separation of the various branches from the area where the reconstructed proto language is presumed to have been spoken. It is often very difficult to detect these, but in the case of New Kingdom Egyptian we have a hieroglyphic usage which helps enormously. The spelling of loanwords in the Old and Middle Kingdoms is like that of Egyptian itself, that is, consonantal, though a few signs have been thought to represent vowels (Hoch 1994.487-504). In the New Kingdom we have a quite different system, best known as 'group writing'. Each consonant of the borrowed word is written, followed in most cases by other consonants. For example, Semitic **brkt* 'pool', Arabic *birka(tu)* may be written *b3y-r-k3-t7* (Hoch 1994.106-7). Many scholars have thought that these clusters represented syllables (e.g., Müller 1893.58-91, Helck 1971.505-75, and Hoch 1994). Hoch's syllabic spelling is *bi-r-ka-ta*. In my opinion, it cannot with any accuracy be said to be a syllabary (see Edgerton 1940).

I suspect, but cannot prove, that each group is the name of a hieroglyph. The scribe is therefore spelling out the word consonant by consonant, with the vowel of the name sometimes corresponding to that of the lending language, and sometimes not. This interpretation gains some support from cuneiform usage. Lexical tablets often have the name of the sign in one of the columns (examples in Bruno Meissner 1925.345-51). It follows that one must check the hieroglyphic spelling of Egyptian words before entering them as possible cognates in the sets of forms being assembled. It is therefore surprising to find in some recent work words spelled in group writing treated as Egyptian in sets of presumed cognates. For example, Orel and Stolbova list as cognates Semitic *kp* 'palm, sole' and Egyptian *kp* '(severed) hand' (1995.312). E.g. *kp* is written in group writing and universally considered a loan (Hoch 1994.317). Similarly Ehret has Late Egyptian *brk* 'to serve', *brg* 'light up' and *brq* 'shine' given as cognates (1995.86). All of these are loans written in group writing (Hoch 1994.101-3). I have not found any such lapses in Bomhard.

In my own case, a file was made for each item on the basic word list, and data gathered for each. The result resembled Carl Buck's collection of IE synonyms (1949). There were many different roots represented for most core items.

3. Check the phonetic accuracy of these primary data. For AAs we have attested data from recognizable Egyptian hieroglyphs of 3200 B.C. to the usage of present-day speakers in other branches of the phylum. Data for IE begins later (ca. 1900 B.C.). No single researcher can have control of the hundreds of languages involved. Some faith must be exercised, but one must also stand ready to question previous conclusions. As I have often pointed out, several hieroglyphs have been given false values due to failure to examine the evidence. Two of these are the Egyptian vulture (ꜣ, Sign List G1, Alan Gardiner 1957.467) and reedleaf (ꞽ, M17). The first is *l*, the second *ʔ*. Loret proposed in 1945 that we read the Egyptian vulture as *l*. This, and the value of reedleaf as *ʔ* are confirmed by their usage in loans through the Middle Kingdom for *ꜣ* as *l* and through the New Kingdom for ꞽ as *ʔ*. Both occur in Egyptian *ʔꜣ* as a writing for Semitic *ʔilu* 'god' (Hoch 1994.492-93).

Another misunderstood hieroglyph is that transcribed *f*. In both the Middle and New Kingdom we find Semitic *p* spelled most frequently by Egyptian *p* but occasionally by *f* (Hoch 1994.401,493). Illič-Svityč considered Egyptian *f* to correspond to Chadic **ph* (1966.34), as did Dolgopolsky (1966.68). The logical conclusion is that Egyptian *f* was a stop, not a spirant, probably [p^h], developing into Coptic *f* in a manner parallel to Greek phi (ancient Greek [p^h], Modern Greek [f]). In contrast, Orel and Stolbova reconstruct AAs **f* as the sound from which one gets Egyptian *f* (1995.xviii), as does Ehret (1995.101-12).

4. Assemble sets of likely cognates from these data. Each researcher in the field has done this, beginning in the nineteenth century. Orel and Stolbova, Ehret and Bomhard are only the latest and are certainly the most comprehensive. Bomhard has fewer items, as they are chosen to be related to other branches of Nostratic. His data on each are more extensive and for that reason generally more useful.

5. Set up regular sound correspondences on the basis of these sets. Orel and Stolbova have a list of AAs consonants (1995.xvi) and charts of sound correspondences (consonants xviii-xx and vowels xxiv). Ehret's statements on correspondences are scattered through the volume, which is arranged phonologically: Labial obstruents (77-119), Dental obstruents (120-73), etc. Each section has an introduction with proposed derivatives of each AAs phoneme in the various branches. The developments he proposes are often quite complex. Bomhard has sections on each of the proto systems, of which AAs is one (91-111). Charts of sound correspondences are included.

We have now reached a kind of plateau. This stage, with its sets of sound correspondences, has been characteristic of work in the field since the nineteenth century and includes my own work prior to my recognition of the consonant ablaut pattern (Hodge 1976, 1981, 1984).

6. The next step is to note the irregular correspondences tolerated at this stage. If one takes Semitic alone the number of correlations which have been made in the literature, and which would result in multiple sound correspondences, is huge. Leslau recognizes such irregularities and calls the one etymon 'related to' others, rather than clearly cognate. This 'implies an etymological correspondence between two roots even though there is no regular correspondence among all the radicals of the root' (1987.xxii). Both Orel and Stolbova and Ehret include such 'related' forms in their etymological sets. For example, we have in Orel and Stolbova *l* ~ *r*, called 'irregular alternation of liquids' (1995.317), *ʕ* ~ *h* 'irregular laryngeal' (315), *k* ~ *k*~ *kʔ* (338, 343). From Ehret we have *b* ~ *m* (1995.85), *n* ~ *l* (327). Bomhard is much more careful and has far fewer multiple correspondences. They do occur occasionally, as *l* ~ *r* (1994.703, Kartvelian), and *b* ~ *m* (661, Altaic). My work at the same level has like faults (e.g., 1981.411).

It is understandable that the failure to recognize Egyptian *3* as *l* and ꞽ as *ʔ* (see 3 above) would produce false etymologies. On the other hand, there seems to be no phonological basis for the large number of sounds with which they have been associated. Ehret tries to form rules to explain the various developments, but as he starts from false premises, his efforts are without validity (see Ehret 1995.338-40, 529-30). Orel and Stolbova (1995) equate *3* with: a vowel, the vowel *a*, *ʔ*, *ʕ* (correctly, 27 cases), *r* (50 cases), *n* (54 cases). Many of their etymologies correctly take reedleaf as *ʔ*, while elsewhere it is treated as *y* or a front vowel. Ehret equates *3* with *ʔ*, *r*, *ʕ*, *h*, *ḫ*, *x* and *γ* (1995.338-40). Reedleaf is treated as *y*, *ʕ* and *i*. Prothetic alif (*ʔ*- before a cluster -CC-) is given morphemic status in some cases as *i- 'attributive' (1995.109, 132). Bomhard also suffers from this misunderstanding: Proto **l* has *n*, *r*, *3* and ꞽ as Egyptian reflexes; **ʔ* has *3* and ꞽ (1994.104-5).

7. Resolve irregular correspondences to the extent possible. While there are other explanations, such as assimilation, dissimilation and other processes, that which has proved to be the most useful is the consonant ablaut hypothesis. Rössler observed that the phonological systems of Egyptian and Semitic patterned in a three

fold manner: voiceless, voiced and a third series which matched the other two in point of articulation but was characterized by velarization, glottalization or other such feature (1971). My own observations, beginning with Arabic, showed that the same root might occur with a plain consonant and also with a velarized one (e.g., *t* and *ṭ*). When observed farther afield, in Chadic, this led to the idea that the modified (third series) consonants were formed by the addition of a morpheme in the proto language. Alternations of *b* and *m* had already been seen as due to the addition of a nasal morpheme (Illič-Svityč 1966). Subsuming velarization, glottalization and aspiration under the morpheme H and nasalization under N, I arrived at the consonant ablaut hypothesis. At a single stroke numerous multiple correspondences are eliminated. For example, the *l* of Hausa *halèè* 'tongue' is from proto ***l*, the *r* of Hausa *haršèè* 'tongue' is from ***lH*, and the *n* of Egyptian *ns* 'tongue' is from ***Nl*, while Coptic *las* 'tongue' has *l* from ***l*.

Some of the multiple correspondences and so-called 'irregularities' mentioned above are readily shown to be normal phonological developments when put into the consonant ablaut frame. Egyptian *ꜣ* has been equated with *l*, *r* and *n* by Orel and Stolbova. If we recognize *ꜣ* as *l*, we have the set ***l*, ***lH*, ***Nl* in the proto language, regularly yielding *l*, *r*, *n*, Ehret has AAs **r*> pre-Eg. **l*; AAs **l* > Eg. *r* and *n* (1995.391-92, a section which has a very complicated set of rules, falsely based on *ꜣ* as *ʔ*). These, too, fit ***l*, ***lH*, ***Nl*. The ʕ ~ *h* alternation assumed by Orel and Stolbova, is part of another ablaut set, basic ***h* and ***hH*, which comes ʕ (ʕayin). Orel and Stolbova's *k* ~ k ~ *kʔ* has *k* from ***k*, and both *k* and *kʔ* from ***gH* (< ***k* plus *H*). Ehret's *b* ~ *m* has *b* from ***b* and *m* from ***Nb*. These are only a few of the many developments which are seen to fit into consonant ablaut sets. This hypothesis has been treated at length elsewhere and illustrated by the publication of numerous bases (see, e.g., Hodge 1992).

8. Determination of other affixes. Reconstructions of bases from related forms throughout the phylum (LL) demonstrates that nearly all have only two consonants, as has long been recognized. Other consonants, including *H* and *N*, are by definition additions. Apart from prothetic alif (automatic initial *ʔ*-, Hodge 1987b), these are morphemes or combinations of morphemes. Given three consonants in the form being considered, one must be prothetic *ʔ*-, or an affix. Which one is the addition can usually be determined by finding two of the three consonants elsewhere and semantically compatible. For example, if one compares Arabic *libās* 'clothing' with Egyptian *ḥbs* 'clothing', it is clear that *l* and *ḥ* are different affixes to a base ***b-s*, which occurs without a prefix in Hausa *bisà* 'on'. The Indo-European form, **wes-* 'to clothe, clothing', has the predictable *b* to *w* shift. It is not always this easy to determine which of the three (or more) consonants is the affix and which two the base, and occasional mistakes are made. For example, Bomhard reconstructed proto Nostratic **saw-* 'to sleep', to which he assigned Egyptian *swx* 'to spend the night'. As Egyptian *wx* 'night' also occurs, the base to which *swx* should be assigned is ***wx*, and the *s*- is the well-known causative/factitive affix. Both Ehret (1989) and I (Hodge 1994) have made affix identifications. The two treatments are drastically

different.

9. Reconstruct proto forms, identifying the base separately from any affixes (where feasible). A single example given at some length will suffice. The base chosen is **_p-d_ 'foot'.

Basic Ablauts			Likely Reflexes		
_p-d_	_p-dH_	_p-Nd_	_p-d_	_p-dʔ, p-dh, p-ğ_	_p-n_
_bH-d_	_H-dH_	_bH-Nd_	_bʔ-d, bh-d, f-d_	_bʔ-dʔ, bh-dh, f-ğ_	_bʔ-n, bh-n, f-n_
_Nb-d_	_Nb-dH_	_Nb-Nd_	_m-d_	_m-dʔ, m-dh, m-ğ_	_m-n_

Attested Forms. Affixes are in parentheses.

**_p-d_	Eg. _pd_ 'knee'. IE *_ped-_ 'foot'.
**_p-d(-s)_	Eg. _pds_ 'stamp flat', _pds_ 'box' (from 'four' > 'rectangular').
**_(ʔ-)p-d_	Eg. _ʔpdw_ 'furniture' (from 'four-footed'). Heb. _ʔēpōd_ 'ephod, foursquare garment'. Berber (Touareg) _afoud_ 'knee'.
**_(ʔ-C_1-)p-d_	Ber. (Tou.) _effed_ 'lend, borrow'.
**_p-dH_	Eg. _p-ğ_ 'base'. Chadic *_-pdʔ_ 'four'.
**_p-dH(-C_2)_	Semitic, Ge'ez _faṭṭa_ 'run'. (G. _ṭ_ is [tʔ].)
**_p-dH(-s)_	Sem. Arabic _faṭisa_ 'to be flat-nosed', _faṭasa_ 'to flatten'.
**_p-dH(-ʔH)_	Sem., Ar. _faṭaḥa_ 'to flatten'.
**_p-dH(-Nl)_	Sem., G. _faṭana_ 'to be fast'.
**_p-Nd_	Ch. *_pnd_ 'thigh'. IE *_pent-_ 'go, tread'.
**_p-Nd(-t)_	Eg. _pnt_ 'to knead (bread)' (from 'press, flatten').
**_bH-d_	Eg. _fdw_ 'four'. IE *_bhud-_ 'stump' (from 'base').
**_(ʔ-)bH-d_	Eg. _ʔfdt_ 'four feet, foursome', _ʔfdy_ 'couch', _ʔfd_ 'to flee'.
**_(ʔH-)bH-d_	IE Hittite _haputi-_ 'bed'. Read _habudi-_, with _b_ from IE *_bh_.

***(ʔ-)NbH-d*	IE in Greek *ámphodon* 'square'.
***bH-dH*	IE **bhudh-* 'bottom, base'.
***(ʔ-)bH-Nd*	Eg. *ʔfn* 'to flee'.
***Nb-d(-s)*	Eg. *mds* 'firmly planted (of foot)'.
***(hH-)Nb-d*	Sem. * *ʕmd* 'to stand or go', Heb. *ʕāmad* 'he stood up', Ar. *ʕamada* 'he went'.
***Nb-dH(-*C_2*)*	Eg. *mğd* 'to press hard on'.
***Nb-Nd(-R)*	Eg. *mnmn* 'to move about'.

(For sources see References.)

Such an assemblage implies a number of different semantic developments, e.g., foot - step - walk - go - depart - make go; foot - four - foursome - four sided - chest; foot - bottom - base - stump. It should be noted that the same base shape may be reflected by several such developments. A great many hitherto unconnectible roots are seen to be completely normal formal and semantic developments. We are thus able drastically to reduce the number of proto phonemes necessary and the number of reconstructible roots (bases). There are, of course, many other problems involved with sound correspondences which remain unsolved, but consonant ablaut has made possible a tremendous step forward which has not been taken advantage of by Orel and Stolbova, Ehret or Bomhard.

REFERENCES

Bomhard, Allan R. and John C. Kerns. 1994. *The Nostratic Macrofamily: a Study in Distant Linguistic Relationship*. Berlin: Mouton de Gruyter. (Trends in Linguistics, Studies and Monographs 74)

Buck, Carl Darling. 1949. *A Dictionary of Selected Synonyms in the Principal Indo-European Languages*. Chicago: University of Chicago Press.

Dolgopolsky, Aron B. 1966. Materialy po sravniteljno-istoric'eskoj fonetike Kus'itskix jazykov: gubnye i dentaljnye smyc'nye v nac'aljnom poloz'enii. *Jazyki Afriki*, ed. by B. A. Uspenskij. Moscow: Nauka.

Edgerton, William F. 1940. "Egyptian Phonetic Writing, from its Invention to the Close of the Nineteenth Dynasty." *Journal of the American Oriental Society* 60:473-506.

Ehret, Christopher. 1989. "The Origin of Third Consonants in Semitic Roots: An Internal Reconstruction (Applied to Arabic)." *Journal of Afroasiatic Languages* 2:109-202.

— 1995. *Reconstructing Proto-Afroasiatic (Proto-afrasian): Vowels, Tone, Consonants, and Vocabulary*. Berkeley: University of California Press. (University of California Publications in Linguistics 126)

Faulkner, Raymond). 1962. *A Concise Dictionary of Middle Egyptian*. Oxford: Griffith Institute.

Foucault, Charles de. 1951-1952. *Dictionnaire Touareg-Français: dialecte de l'Ahaggar*. 4 vols. [Paris]: Imprimerie Nationale de France.

Gardiner, Alan H. 1957. *Egyptian Grammar*. 3rd ed. London: Oxford University Press.

Helck, Wolfgang. 1971. *Die Beziehungen Ägyptens zu Vorderasien im 3. und 2. Jahrtausend v. Chr.* 2nd ed. (Ägyptologische Abhandlungen 5) Wiesbaden: Otto Harrassowitz.

Hoch, James E. 1994. *Semitic Words in Egyptian Texts of the New Kingdom and Third Intermediate Period*. Princeton: Princeton University Press.

Hodge, Carleton T. 1976. "An Egypto-Semitic Comparison." *Folia Orientalia* 17:5-28.

— 1981. "Comparative Evidence for Egyptian Phonology." *Studies Presented to Hans Jakob Polotsky*, ed. by Dwight W. Young. East Gloucester: Pirtle and Polson.

— 1984. "Lislakh: Progress and Prospects." *Current Progress in Afro-Asiatic Linguistics*, ed. by James Bynon. Amsterdam: John Benjamins. (Current Issues in Linguistic Theory 28)

— 1987a. "The Status of Lisramic (Hamito-Semitic) Sound Correspondences." *Proceedings of the Fourth International Hamito-Semitic Congress*, ed. by Herrmann Jungraithmayr and Walter W. Müller. Amsterdam: John Benjamins.

(Current Issues in Linguistic Theory 44)

— 1987b. "Lislakh Cluster Resolution." *Anthropological Linguistics* 29:91-104.

— 1992. "Tooth and Cclaw." *Anthropological Linguistics* 34:202-32.

— 1994. "Some Proto Affixes." *The LACUS Forum* 20:526-36.

Illič-Svityč, V. M. 1966. "Iz istorii čadskogo konsonantizma: labijaljnye smyčnye. *Jazyki Afriki*, ed. by B. A. Uspenski. Moscow: Nauka.

Jungraithmayr, Herrmann and Dymitr Ibriszimow. 1994. *Chadic Lexical Roots*. 2 vols. Berlin: Dietrich Reimer. (Sprache und Oralität in Afrika 20)

— and Kiyoshi Shimizu. 1981. *Chadic Lexical Roots*. Vol. 2. Marburger Studien, Serie A, Afrika 26)

Leslau, Wolf. 1987. *Comparative Dictionary of GeKez (Classical Ethiopic)*. Wiesbaden: Otto Harrassowitz.

Levin, Saul. 1995. *Semitic and Indo-European: the Principal Etymologies*. Amsterdam: John Benjamins. (Current Trends in Linguistic Theory 129)

Loret, Victor. 1945. "La lettre *l* dans l'alphabet hiéroglyphique." *Academie des Inscriptions et Belles-lettres. Comptes rendus*. Paris: Henri Didier.

Meissner, Bruno. 1920, 1925. *Babylonien und Assyrien*. 2 vols. Heidelberg: Carl Winter. (Kulturgeschichtliche Bibliothek 1.4)

Müller, W. Max. 1893. *Asien und Europa nach altägyptischen Denkmälern*. Leipzig: Wilhelm Engelmann.

Obenga, Théophile. 1993. *Origine commune de l'égyptien ancien, du copte et des langues négro-africaines modernes*. Paris: Éditions l'Harmattan.

Orel, Vladimir E. and Olga V. Stolbova. 1995. *Hamito-Semitic Etymological Dictionary*. Leiden: E. J. Brill. (Handbuch der Orientalistik 1.18)

Rössler, Otto. 1971. "Das Ägyptische als semitische Sprache." *Christentum am Roten Meer*, ed. by Franz Altheim and Ruth Stiehl. Vol. 1. Berlin: Walter de Gruyter.

Watkins, Calvert, ed. 1985. *The American Heritage Dictionary of Indo-European Roots*. Boston: Houghton Mifflin.

CLITIC DUPLICATION IN WESTERN ROMANCE: A CASE OF GRAMMATICALIZATION

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1. Introduction

This paper will attempt a synthesis. Since the late 70's, considerable work has been done on clitic duplication in Romance (henceforth CD), but most analyses have focused on individual languages, occasionally venturing some tentative comparative conclusions. Here I will try to pull together insights from French and Spanish in order to make a case for grammaticalization of CD as an ongoing process that exhibits a split depending on the clitic's function. For subject CD, French, and in particular Quebec French, has evolved the farthest. Object CD, on the other hand, comes closest to total grammaticalization in Latin American Spanish, with Peninsular Spanish in the middle and French the language where this process is least advanced.

I should first clarify what is meant in this paper by 'grammaticalization'. This term will signify the drift toward obligatory coexistence of two discontinuous elements: a lexical noun or tonic pronoun on the one hand, and a co-referring clitic on the other. 'Clitic' is used here in the sense of 'bound pronominal affix' and should not be confused with the definition of it given in Zwicky & Pullum 1983.

Grammaticalization has applied more often to the semantic bleaching-cum-generalization of lexical items (cf. Heine, Claudi, & Hünnemeyer 1991, Hopper & Traugott 1993), but whether we are dealing with single words or co-occurring elements matters little: in both cases one can speak of a trend toward obligatory instantiation with more generalized functions and semantics. Haiman 1993 lumps grammaticalization with reification in Marxist economics, institutionalization in sociology and ritualization in ethology; all exemplify emancipation, in that the phenomenon takes on a life of its own, becoming independent of the factors which first motivated it. By the end of this paper, I hope it will be apparent that CD is a case of only partial "emancipation" from its original, topicality-related function.

The paper is organized as follows. After an initial summary of analyses treating French and Spanish separately, I will present a three-part comparison. First, I will examine structural differences between the two languages that relate to their differences in CD behaviour. Second, I will point out similarities which suggest that French and Spanish are undergoing fundamentally the same evolution in CD, although at different rates in different areas of their grammar. Third, I will apply to French and Spanish CD the criteria proposed by Bresnan & Mchombo 1987 for distinguishing between anaphoric and grammatical agreement. The results suggest that clitics in both languages can not yet be globally treated as agreement markers, the final stage according to Givón 1976 in the evolution from independent pronouns, although some regional varieties are exhibiting agreement status in certain contexts.

2. *Spanish*

2.1 Pan-Spanish CD. Pre-posed objects require CD:

(1) La caja$_i$ no la$_i$ encontré. 'The box, I didn't find it.'
(2) A Pilar$_i$ no le$_i$ apetece esa idea. 'Pilar doesn't care for that idea.'

Post-posed indirect objects usually take CD; post-posed direct objects normally don't:

(3) Ya se$_i$ lo mostré a Pablo$_i$. 'I already showed it to Pablo.'
(4) (*La$_i$) Estoy buscando la receta$_i$. 'I'm looking for the recipe.'

For Silva-Corvalán 1981 and Suñer 1988, the topicality-related features definiteness, humanness, level of argument participation (agent vs. dative vs. accusative), and presence of a determiner are crucial for explaining these generalizations AND exceptions to them. Basing her analysis on spoken Chilean data, Silva-Corvalán maintains that CD for pre-posed nouns depends on a composite feature 'specificity', which reflects both the pragmatic trait 'definiteness' and the syntactic trait of presence vs. absence of a determiner. She adopts Givón's definition of definiteness, i.e. ease of referent identification by the addressee. There is maximum likelihood of CD if a noun is both definite and occurs with a determiner, as in (1) and minimum probability if it lacks these two, as in

(5) Hogar ni tiene. 'As for a home, he doesn't even have one.'

Different values for the two traits correlate with intermediate points along the scale of CD incidence.

For post-posed nouns, CD has a much lower incidence, the principal reason being that the noun is no longer in the canonical topic position at the head of the sentence. Datives, which text counts confirm to be higher in animacy and definiteness, are much more likely to exhibit CD than accusatives. In the few dialects tolerating CD with post-posed accusatives, such as Rio Plantense and Chilean, the conditioning factors are again topicality-related, even though the post-posed noun is not a canonical topic. García 1975 claims that the object must be human in such cases, while Silva-Corvalán and Suñer maintain that definiteness is necessary.

2.2 Latin American vs. Peninsular Spanish. García-Miguel & Vázquez Rozas 1994 and Vázquez Rozas 1996 propose the following criteria that favour CD for post-posed datives in Peninsular Spanish:

a) number of arguments: CD is more likely to arise with 2 argument vbs (e.g. *gustar* 'please', *sorprender* 'surprise') than 3 argument verbs like *dar* 'give' and *decir* 'tell'.
b) non-argument dative (e.g. possessive) is more likely to display CD than a lexical dative such as a goal)
c) referential Ns are more likely to be duplicated than are generic ones, definite more than indefinite
d) old information tokens have higher incidence than new information tokens
e) the less formal the register, the more likely is CD.

In Latin-American varieties, the only criterion that can block CD is (c). The data in Bentivoglio 1978 show that CD with post-posed datives occurs there with almost 100% incidence, the exception being generic, non-definite arguments.

3. French

Found mainly in colloquial registers, topic ("left detachment") and anti-topic ("right detachment") structures are the main sources of CD in French. The most thorough study of topics and anti-topics is Lambrecht 1981, whose findings I will now summarize.

3.1 *Topics.* Morphosyntactically, topics are distinguishable from arguments in that they

1. never mark case:

(6) Les livres$_i$ je-m-y$_i$-intéresse pas. 'Books don't interest me.' vs. Je ne m'intéresse pas aux livres. 'I'm not interested in books.'

2. are not restricted to any given case role, i.e. can be tied to subject, d.o. or i.o.:

(7) Toi$_i$, t$_i$-as bu tout le Calvados? 'And you, did you drink all the Calvados?'
(8) Et le Calvados$_i$, tu-l$_i$-as tout bu? 'And the Calvados, did you drink it all?'

3. don't have to correspond to an argument of the verb:

(9) Les conflits ethniques, paraît qu'i-n-y-a rien à faire. 'As for ethnic conflicts, there's nothing you can do.'

4. do not have to be continguous with the clause containing the doubling clitic:

(10) Moi$_i$, ça va sans dire, quand tu viendras, je$_i$-serai là. 'As for me, it goes without saying, when you come, I'll be there.'

As regards their discourse/pragmatic properties, topics must be cognitively given, i.e. either textually or situationally evoked, generic, or inferrable from something mentioned. Hence the unacceptability of a brand-new topic, i.e. one that the addressee could not be aware of, e.g.

(11) *Un messager$_i$ il$_i$-vient d'arriver. 'A messenger, he's just arrived.'

Topics' key pragmatic feature is that they mark the passage from evoked to given, i.e. they establish the referent as the central element being talked about (cf. Prince 1981). Barnes 1985 further nuances the connection between topics and foregrounded discourse.

3.2 Anti-Topics (Right Dislocations). Lambrecht distinguishes these from topics with the following formal criteria:

1. Anti-topics must bear case-marking:

(12) Jean lui$_i$-a déjà parlé, à sa mère$_i$. 'Jean has already spoken to his mother.'

2. They must be placed right after the element carrying primary stress. This fixed position contrasts with the syntactic freedom of topics.

3. They can occur in embedded structures, e.g.

(13) Les ennuis qu'il-a, Pierre, sont imaginaires. 'The worries he has, Pierre, are imaginary.'

4. Prosodically, anti-topics are weaker than topics: they are never stressed and occur after the intonation peak.

Pragmatically, anti-topics generally have the same properties as topics, except that they must already have been set up as the entity being talked about; they are thus higher on a presupposition scale than topics.

3.3. Pre-Verbal Contrasted NPs. Lambrecht includes these because they too are doubled, but they differ from topics in

1. being marked for case, e.g.

(14) À Barbara je lui-ai fait des reproches, mais jamais à Sylvain. 'BARBARA I criticized but never Sylvain.'

2. taking primary stress, since they are focal, and
3. being an assertion rather than a presupposition.

4. Comparison of French and Spanish CD

4.1 Differences. In this section I will show how dissimilarities in structure between the two languages underlie observed contrasts in CD behaviour.

1. Subject pronouns are clitics in French, but tonic in Spanish. Pragmatically, the following 2 are equivalent:

(15) Moi, je peux pas. = Yo no puedo. 'I can't'

In French, the topic *moi* is distinct from the subject *je*, but in Spanish *yo* is simultaneously topic and grammatical subject. Spanish lacks subject clitics, but it retains agreement between the optional tonic pronoun or lexical noun and the verb ending, an agreement which has nearly disappeared in spoken French. There is also a "primordial" topic structure which Klein-Andreu 1995 notes for non-standard Spanish:

(16) Yo$_i$, no me$_i$ gustó la obra. 'I didn't like the play.'

By "primordial" I mean that *yo* is a topic without any as yet syntactic link to the rest of the S, corresponding to Givón's stage 1 of topic-to-subject evolution. (The closest standard Spanish equivalent of (16) would require CD with a clause-internal *a mí* in place of *yo*.) (16) is arguably a forerunner of French-style topics, with a single tonic form which can link to subject or object clitics. Spanish is thus far less advanced than French vis-à-vis subject CD. Moreover, Auger 1993 claims that Quebec French has seen subject clitics become obligatory agreement markers. The Montreal corpus of Sankoff/Cedergren (see Thibault & Vincent 1990) provides data like

(17) En campagne, quand quelqu'un$_i$ il$_i$-dansait ... 'In the country, when someone, he danced...'

where even indefinite, non-generic subjects take agreement.

2. Correlates between morpho-syntax and information structure.

The higher incidence of object CD for Spanish is due, in part, to that language's greater adherence to topic-focus order, which frequently results in post-verbal focal subjects cum pre-posed objects. This gives object CD a case-distinguishing role (García 1975, García-Miguel 1991), as in

(18) Este problema$_i$ lo$_i$ causó tu olvido. 'This problem your forgetfulness caused it.'

where the clitic signals that *problema* cannot be subject. French tends to avoid subject post-posing in main clauses. As Lambrecht 1994 points out, it typically handles new elements via presentational structures in which CD is absent, as in

(19) C'est ton oubli qui a causé ce problème. 'It's your forgetfulness that caused this problem.'

and

(20) Ya un vendeur qui demande à te voir. 'There's a salesman asking to see you.'

3. Clause-internal (mainly Spanish) vs. clause-external NPs (mainly French)

Clause-external NPs are defined as having a discrete intonation contour and never carrying primary stress. For pre-verbal clause-external NPs, a concomitant diagnostic is lack of case-marking. French topics and anti-topics by these criteria are clause-external. Spanish presents a mixed picture. It too has French-style, clause-external topics and anti-topics, but most Spanish CD involves clause-internal NPs. Pre-verbally, there are clause-external topics, as in (16) and

(21) La criada$_i$, no la$_i$ vi. 'The maid, I didn't see her.'

as well as clause-internal topics:

(22) A la criada$_i$ no la$_i$ vi. (same gloss)

Pragmatically we are still justified in considering *criada* in (22) to be the topic: its topic-pertinent features such as being definite and evoked provide the most plausible explanation for its not occurring in the unmarked post-verb position, normally reserved for focal entities. The non-case-marked NP of (21) is perhaps a more prototypical topic (it is less subject to locality constraints), but as functionalist analyses of Spanish object CD and word order have demonstrated, we are faced with degrees of topicality rather than all-or-none.

Post-verbally, a Spanish dative NP is routinely clause-internal, as confirmed by the possibility of its carrying primary stress and of placing another clause-internal element after it:

(23) Se$_i$ lo di al jardinero$_i$ por orden del jefe. 'I gave it to the gardener by order of the boss.'

Finally, as evidence that French is moving along the same path as Spanish, we note the following from Ossipov 1990:

(24) J'en$_i$-ai ben lu des livres$_i$ dans ma jeunesse. 'I read many books in my youth.' (from Ossipov 1990, cited in Auger 1993).

Because the doubled *livres* occurs before a temporal expression that must itself be clause-internal, we are faced with an unequivocal instance of clause-internal doubling. Lambrecht (personal communication) provides a similar example from a corpus of southern French:

(25) Téléphones-y$_i$ à ta mère$_i$. 'Phone your mother.'

Because *mère* is focal, this is again an instance of clause-internal doubling, a harbinger of the typical Spanish situation.

4.2 Similarities.

1. Morpho-syntactic/prosodic

Both languages allow initial clause-external doubled NPs that lack case-marking and allow a pause or intonation contour separating the NP from the rest of the S:

(26) La enfermera$_i$, no la$_i$ encontramos todavía = L'infirmière$_i$, nous ne l$_i$'avons pas encore rencontrée. 'The nurse, we haven't found her yet.'

With case-marking, we see a split between form and function. Comparing

(27) A mis hijos$_i$ no les$_i$ gustó la película.

with

(28) A mes enfants$_i$ le film ne leur$_i$ a pas plu.

we note the structural resemblances of case-marking and CD. Functionally, however, these two are not equivalent: the Sp S is pragmatically unmarked: this is the neutral way to say 'My kids didn't like the film', i.e. where the information structure (topic-focus) is the same in Spanish and English. Because of the case-marked *mes enfants*, the French S is contrastive, rather than a topic, i.e. it would be glossed 'My KIDS didn't like the film'. In its information structure, this S is marked because the focus is sentence-initial. The similarity between French and Spanish is thus one of form: case-marking and lack of a pause indicate clause-internal status for the experiencer in both languages.

With post-posed NPs, whether clause-internal or -external, case-marking is obligatory in both languages. Post-posed NPs already have their verb mentioned before their occurrence, so case is required plausibly by virtue of a servitude grammaticale; i.e. whether or not the doubled NP is inside the clause, it falls under the verb's influence; doubled topics, on the other hand, occur without case because their controlling verb has not yet been mentioned. A well-known analogous phenomenon is the surface structure dependency of scope of negation (Jackendoff 1972), e.g. the contrast between

(29) Many of the voters didn't believe Clinton but a sizeable number did.

and

(30) *Clinton wasn't believed by many of the voters, but a sizeable number did believe him.

In the active S, the initial quantifier is uninfluenced by the negative but in the passive it is, since *not...many* has to be construed as 'few'. Hence the additional predication of 'a sizeable number' is fine with the active version but contradictory with the passive. Another parallel is the effect of French quantity expressions depending on whether the doubled noun is pre- or post-posed. With post-position, the bare preposition *de* is required, as is normally the case with non-definite quantified nouns in the same constituent as the quantifier:

(31) J'en$_i$ ai assez, de problèmes$_i$. 'I have quite a few problems.'

If the noun is pre-posed, the full indefinite determiner occurs as an indication of partitivity, presumably because the controlling quantifier has yet to be uttered:

(32) Des problèmes$_i$, j'en$_i$ ai assez. 'Problems I have quite a few of.'

Admittedly, these parallels do not in themselves constitute an explanation of why case-marking is obligatory for post-posed doubled NPs, but they do support the hypothesis that mention of the controlling verb is the key factor for obligatory case-marking.

2. Doubling in both languages conforms to the definiteness hierarchy

Givón 1976 proposes that a nominal's topic-worthiness derives from hierarchies of animacy, involvement (subject more involved or active than accusative), person, and definiteness. In both French and Spanish, only definiteness unequivocably determines grammaticality of the topic; the first 3 hierarchies manifest only tendencies, i.e. all points along their scale allow for topics; a noun ranking at the bottom of all three (inanimate, minimally involved [accusative] and third person) could still have topic status and be doubled. A noun at the bottom of the definiteness scale, i.e. not recoverable from the discourse or the speech situation and/or lacking any determiner, could never be a topic, and indeed both French and Spanish prohibit CD with such nouns.

4.3 Theoretical Status of the Clitic-NP Link. I will begin with a brief excursus on the TG/functionalist debate as to what constitutes an argument of a predicate. TG has viewed clitics variously as derived via transformation (non-arguments), as base-generated arguments, and as a mixture. Jaeggli 1982 proposed a split analysis of Spanish dative clitics: the possessor-dative clitic carries case, while goal dative clitics arises via copying from their NP source. Similarly, Auger 1993 treats French subject clitics as agreement markers, so that the noun of *Jean il-comprend* is the true subject, while object clitics have argument status, with their doubled NP instantiating true dislocation. A functionalist work situated at 180 degrees from the original TG position, van Valin 1985 argues that the configuration vb + incorporated pronouns (the latter term being the customary analogue of 'clitic' in Romance) is the basic structure for head-marking languages, with NPs simply helping to pin down the reference of the affixes.

Linguistics thus displays an overall lack of consensus on the nature of the relation between a clitic and co-referring nominal, both across and within frameworks. While this debate obviously reflects divergences in the actual theories, another important factor may be the nature of the beast, i.e. the fact that we face an evolving phenomenon for which syntactic, semantic and pragmatic tests produce often inconsistent results. In this section I will present evidence that suggests the overall picture of French and Spanish clitics is one of a transition phase between argument and non-argument (i.e. agreement-marker) status.

For Givón 1976, anaphoric and deictic pronouns referring to topics tend to become verbal affixes and ultimately agreement markers with the subject, an erstwhile topic:

1. Jane, she left → 2. Jane, she-left → 3. Jane she-left
TOP SUBJ TOP CLITIC-SUBJ SUBJ AGR

These three stages may also pertain to objects. Working in a lexical-functional framework, Bresnan & Mchombo 1987 agree that anaphoric elements evolve into agreement markers, but they examine an African language, Chicheŵa, which maintains both stages 2 and 3. They propose that the Chicheŵa subject marker (SM) can be either an incorporated pronoun, stage two, or an agreement marker, stage 3, while the object marker (OM) can be only an incorporated pronoun. Stage 2 involves anaphoric agreement; the pronominal affix is itself an argument of the verb and is linked to a non-argument nominal, usually the topic. In stage 3, the affix has become an agreement marker which links with a nominal argument. Symmetries in subject/object patterns and asymmetries in agreement patterns are brought up to justify this hypothesis in Chicheŵa. Here is the preceding diagram with these added specifications:

1. Jane, she left →	2. Jane, she-left →	3. Jane she-left
TOP SUBJ	TOP CLITIC-SUBJ	SUBJ AGR
(anaphoric agr.)	(anaphoric agreement)	(grammatical agr.)
	(incorporated pronoun)	(agreement marker)
	(argument = pronoun)	(argument = NP)

Four diagnostics proposed by Bresnan & Mchombo are pertinent for French and Spanish clitics.

1. Doubling with WH elements: possible for stage 3, but not stage 2.

Since anaphoric agreement is possible only with a topic or other non-focused NP, doubling with a focal WH element is ruled out. Only grammatical agreement is thus allowed with WH words. This criterion would put French and Spanish verb-endings at stage 3, since they routinely co-occur with WH words. Clitics are mostly incompatible with WH words in both languages, the one exception according to Suñer 1988 being the particularizing Spanish *cuál* 'which one', which can be doubled:

(33) ¿A cuál$_i$ de los candidatos le$_i$ hablaste? 'Which one of the candidates did you talk to?'

2. Pro-drop: a stage 2 form can stand on its own; a stage 3 form needs an NP.

Incorporated pronouns should be grammatical even without any link to an NP, since the pronoun is itself an argument. Stage 2 thus corresponds to what Perlmutter 1971 terms 'pro-drop'. Agreement markers, as the term implies, require an accompanying NP.

For this criterion, all instances of CD unproblematically classify as stage 2, i.e. incorporated pronouns, since the clitic can always occur without an anaphorically-linked noun. For verb-endings, though, the Spanish results contradict the previous diagnostic, i.e. the endings don't require an accompanying nominal, yet they are compatible with WH words. The French verb-endings are consistently at stage 3, since they generally need a co-occurring NP.

3. Case-marking: a stage 2's NP lacks case-marking; a stage 3's NP has it.

Given the principle of functional uniqueness (only one instantiation of an argument per clause), a case-marked noun necessarily carries argument status and its co-referring verbal affix must therefore be an agreement marker. Conversely, lack of case-marking for a noun signals that the affix is an incorporated pronoun. Here the split is with clitics. All French topics and Spanish clause-external topics lack case-marking, while all post-verbal NPs have it. Verb-endings are at stage 3 in Spanish because they co-occur with pronouns having overt subject marking. In French, this criterion is inapplicable because independent subject nominals are never marked for case, the traditional case-marked pronouns having become clitics.

4. Locality: stage 2 is not bound by it; stage 3 is.

When the Chicheŵa OM is present, the co-referring noun is a "floating" topic, i.e. it has numerous word order possibilities. If no OM is present, the object noun must occur postverbally, within the VP. Generally, an agreement marker correlates with locality constraints on the noun, while a noun linked to an incorporated pronoun enjoys freer ordering. This corresponds well to the topic/subject difference which Lambrecht points out for French: topics can be non-local, e.g. separated from their co-referential clitic by an intervening clause, while subjects must obey locality. Anti-topics occupy a middle ground: occuring directly after the clause containing their co-referential clitic, they are more removed from the verb than subjects, but have less freedom than topics. In Spanish, the same scale applies; as expected, clause-external topics there are less subject to locality than other doubled nouns. For the verb-endings of both languages, the verdict is stage 3, as locality uniformly applies.

None of the four diagnostics gives absolutely consistent results. Nevertheless, they tend to situate clitics at stage 2 and verb-endings at stage 3, which is what our autonomous diachronic knowledge would lead us to expect. Even though clitics are thus overall at an earlier phase than verb endings, some of Bresnan and Mchombo's criteria do place them at stage 3, which corroborates our impression of their transitional nature.

This 3-stage model lends itself well to a distinction noted in Lambrecht 1994. Clause-external French CD, i.e. with topics and anti-topics, would presumably involve argument (stage 2) clitics. However, clause-internal CD with tonic pronouns, as in

(34) Je t$_i$'ai vu toi$_i$. 'I saw YOU' (in answer to e.g. 'Who did you see?')

would be an instance of an agreement marker (stage 3) *t'* echoing the direct object argument *toi*. With an anti-topic, as in

(35) Je t$_i$'ai vu, toi$_i$. 'I SAW you' (e.g. after a command like 'Stop hiding!'.)

the same clitic *t'* would itself constitute the argument. Lambrecht justifies this dual status for the clitic on grounds of information structure, as reflected in the glosses for the two preceding examples. We have seen that post-posed French lexical nouns too can at times be doubled without being clause-external (cf. (24)), so it is questionable to single out clause-internal doubling of tonic pronouns for separate treatment. It seems preferable to attribute the different status of the clitic in (34) and (35) to a fluctuation between stages 2 and 3. In other words, all clause-external nominals would be doubled with an incorporated pronoun (stage 2), while clause-internal nominals would exhibit an agreement marker (stage 3). In Spanish, CD has long been possible with clause-internal nouns. The data in Silva-Corvalán 1984 show a progressive increase in CD since Old Spanish, for both nouns and tonic pronouns. So, even if both French and Spanish CD may have originated as links between a clitic and clause-external noun and as a different process from clitic-tonic pronoun links (the latter being by no means certain), present-day evidence from both sides of the Pyrenees and of the Atlantic indicates a steady expansion of CD to include clause-internal NPs, i.e. Givón's final stage 3.

5. Conclusion

Givón 1976 proposed that subjects arise as grammaticalized topics. For Spanish, Silva-Corvalán 1981 extended this hypothesis to duplicated clitic objects, maintaining that they are markers of verb-object agreement. Lambrecht 1981 argued that right- and left-dislocations in French also manifest such agreement. In this paper I have tried to tie together these sometimes disparate functionalist strands, proposing that French and Spanish clitics currently vary between incorporated pronoun and agreement marker status. The resulting picture is spreading grammaticalization of CD in both languages, although with a split: subject CD is much farther ahead in French, while object CD is closer to Givón's final stage 3 in Spanish. I have evoked differences in syntax and information structure to account for this split.

REFERENCES

Auger, Julie. 1993. "More Evidence for Verbal Agreement-Marking in Colloquial French." In: *Linguistic Perspectives on the Romance Languages.* Edited by William J. Ashby, Marianne Mithun, Giorgio Perissinotto & Eduardo Raposo. Amsterdam: Benjamins. Pp. 177-198.

Barnes, Betsy. 1985. *The Pragmatics of Left Detachment in Spoken Standard French. Pragmatics and Beyond.* Vol. VI:3. Amsterdam: Benjamins.

Bentivoglio, Paola. 1978. "Formación de clíticos: análisis sobre el habla culta de Caracas." In: *Corrientes actuales de la dialectología del Caribe hispánico.* Edited by H. López Morales. Puerto Rico: Editorial Universitaria.

Bresnan, Joan & Sam A. Mchombo. 1987. "Topic, Pronoun, and Agreement in Chicheŵa". *Language.* 63.4: 741-782.

García, Erica C. 1975. *The Role of Theory in Linguistic Analysis: The Spanish Pronoun System.* Amsterdam: North-Holland.

García-Miguel, José María. 1991. "La duplicación de complemento directo e indirecto como concordancia." *Verba.* 18: 375-410.

García-Miguel, José María & Victoria Vázquez Rozas. 1994. "Lingüística de corpus y lingüística descriptive: el caso de la duplicación de objets." *Boletín de la Sociedad Española para el Procesamiento del Lenguaje Natural.* 14: 47-61.

Givón, Talmy. 1976. "Topic, Pronoun, and Grammatical Agreement." In: *Subject and Topic.* Edited by Charles Li. New York: Academic Press.

Haiman, John. 1993. "Life, the Universe, and Human Language (A Brief Synopsis)." *Language Sciences.* 15: 293-322.

Heine, Bernd, Ulrike Claudi & F. Hünnemeyer. 1991. *Grammaticalization: A Conceptual Framework.* Chicago: University of Chicago Press.

Hopper, Paul J. & Elizabeth Closs Traugott. 1993. *Grammaticalization.* Cambridge, England: Cambridge University Press.

Jackendoff, Ray S. 1972. *Semantic Interpretation in Generative Grammar.* Studies in Linguistics. Cambridge, Mass.: MIT Press.

Jaeggli, Osvaldo. 1982. *Topics in Romance Syntax.* Dordrecht: Foris.

Klein-Andreu, Flora. 1995. "Conversational Focus." In: *Meaning as Explanation: Advances in Linguistic Sign Theory.* Edited by Ellen Contini-Morava & Barbara Sussman Goldberg. Berlin: Mouton de Gruyter. Pp. 405-422.

Lambrecht, Knud. 1981. *Topic, Antitopic and Verb-Agreement in Non-Standard French. Pragmatics and Beyond.* Vol. II:6. Amsterdam: Benjamins.

— 1994. *Information Structure and Sentence Form: Topic, Focus, and the Mental Representations of Discourse Referents.* Cambridge: Cambridge University Press.

Ossipov, Hélène. 1990. *A GPSG Account of Doubling and Dislocation in French.* Indiana University dissertation.

Perlmutter, David. 1971. *Deep and Surface Structure Constraints in Syntax.* Transatlantic Series in Linguistics. New York: Holt, Rinehart and Winston.

Prince, Ellen. 1981. “Toward a Taxonomy of Given-New Information.” In: *Radical Pragmatics*. Edited by Peter Cole. New York: Academic Press. Pp. 223-56.

Silva-Corvalán, Carmen. 1981. “The Diffusion of Object-Verb Agreement in Spanish.” In: *Papers in Romance*. Vol. 8, Supplement 3. Edited by H. Contreras and J. Klausenburger. Pp. 163-176.

— 1984. “Semantic and pragmatic factors in syntactic change.” In: *Historical Syntax*. Edited by Jacek Fisiak. Amsterdam: Mouton.

Suñer, Margarita. 1988.” The Role of Agreement in Clitic-Doubled Constructions.” *Natural Language and Linguistic Theory*. 6: 391-434.

Thibault, Pierrette & Diane Vincent. 1990. *Un Corpus de français parlé*. Recherches Sociolinguistiques. Vol. 1. Montreal

van Valin, Jr., Robert D. 1985. “Case Marking and the Structure of the Lakhota Clause.” In: *Grammar Inside and Outside the Clause: Some Approaches to Theory from the Field*. Edited by Johanna Nichols and Anthony C. Woodbury. Cambridge: Cambridge University Press. Pp. 363-413.

Vázquez Rozas, Victoria. 1996. “Aspectos sintácticos y discursivos de los clíticos pronominales en español: Duplicación vs. no duplicación de complementos indirectos remáticos.” Paper given at XI Congreso Internacional de la ALFAL, University of Las Palmas de Gran Canaria, July 22-27, 1996.

Zwicky, Arnold M. & Geoffrey K. Pullum. 1983. “Cliticization vs. Inflection: English *n't*.” *Language*. 59: 502-513.

IX

THEORETICAL, METATHEORETICAL AND MULTIDISCIPLINARY STUDIES

VERBAL METAPHORS AND NONVERBAL METAPHORICS : WHAT CAN THEY TEACH US?

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1. Verbal/Nonverbal Communication Interface

Actual communication between people is more than the exchange of verbal utterances. It has verbal and nonverbal components which are rarely studied together. McNeill (1992,1995) is one of the few who has devoted his research to establishing that gesticulation and speech form an integrated communication system. His research, concentrated on the relationship between verbs and gestures, is unveiling a system underlying this integrated communication system. Since the function of gesticulation is deeply connected to speech as the two simultaneously communicate and share concepts, it seemed important to us to investigate how other grammatical categories would be 'gesticulized'. For instance, are gestures and adjectives also linked? Do they also form a system of communication? This paper answers – at least partially – these two questions. Our methods are inspired by McNeill's experiments. McNeill (1992) defined four main categories of gestures:

- *Iconic gestures* display in their form and manner of execution concrete aspects of the scene as in the speech. They appear with narrative level references to the concrete events of the story
- *Metaphoric gestures* display in their form and manner of execution abstract concepts and relationships. *Metaphorics* appear with meta-narrative level references to the structure of the story itself
- *Beats* are timed to occur with thematic discontinuities in discourse and do not depict any imagery. *Beats* often appear with shifts between narrative levels
- *Deictics* point to a location, a gesture space, that stands for an abstract concept or relationship. *Deictics* also appear at the meta narrative level.

Iconics and *metaphorics* are the two main categories we will be looking at in this paper.

2. Verbal Metaphors and Non-Verbal Metaphorics

Our title refers to 'verbal metaphors' and to 'metaphorics'. This section will explain our terminology and hence will clarify our school of thought.

As far as the term *metaphorics* is concerned, McNeill defined them as a "present imagery, [...] an image of an abstract concept, such as knowledge, language itself, the genre of the narrative" (McNeill, 1992:80). Metaphorics are then a type of speech-accompanying gestures which have a similar function on the nonverbal level of communication as metaphors have on the verbal/linguistic level. Therefore we expected to find a link between these non-verbal metaphorics and linguistic metaphors.

We now hypothesize that adjectives could be considered as linguistic metaphors when they are used in a figurative way. The usage of adjectives is commonly seen as describing our judgment about reality in concrete terms (*a small house*) or metaphorical terms (*a small mind*). If we examine this figurative usage in the light of Lakoff and Johnson's definition of metaphor (a "[m]etaphor [being] principally a way of conceiving one thing in terms of another, and its primary function is understanding" – 1980:36), we could then extrapolate that these adjectives are verbal/linguistic metaphors.[1] Our research looks at the possible correlation between gestures described as metaphorics and adjectives considered as verbal metaphors.

We are aware that our hypothesis about this possible correlation between linguistic metaphors and gestural metaphorics is not yet supported by any theoretical framework as far as we know. However, findings of neurological research on languages have shown that the right hemisphere of the brain plays a definite role in understanding adjectives AND metaphors, as well as extralinguistic features of communication (Mendoza, 1995:48-50). This neurolinguistic connection supports the hypothesis that adjectives can be related to metaphors.

3. *Method and Experiment*

We have collected samples of gestures and speech that allow us to compare adjectives and gestures among bilingual speakers and across languages (French and English). Our experiment was inspired by McNeill's. His stimulus was an animated Warner Brothers 1949 Tweety & Sylvester cartoon. In our case speakers were shown a narrative stimulus: a famous comic strip called Tintin whose title was *Le Secret de la licorne*. Each subject viewed a 10 page long story that depicted a battle on a pirate ship. They were asked immediately afterwards to tell the story of the stimulus from memory to a listener as we videotaped the performance. We also captured the spontaneous conversation that took place before and after the task itself. In phase 1 subjects were asked to describe in French what happened in the story. In phase 2 subjects were asked to do the same thing but in English. Phase 1 always preceded phase 2. The subjects were not aware that either their gestures or the adjectives were of interest. The narrative was transcribed and its linguistic structure analyzed. Independently we analyzed the unprompted gestures that accompanied their verbal descriptions.

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[1] In French, many adjectives have a differential meaning according to its position in the nominal syntagm. They describe nouns in concrete terms when placed afterwards such as *un homme grand* as "a tall man". They are used figuratively and describe abstract concepts mostly when they are placed before the noun : *un grand homme* is translated as a "great man". The question which is still to be answered is whether this abstract meaning would be expressed by a gesture or not. If yes, would it be the same as for the concrete meaning ?

Our subjects were four women between the ages of 27 and 37; they all held post-secondary degrees. They were all Canadian born bilingual French-English with French as their mother tongue except for one. We are fully aware of the small number of subjects. On the other hand, this study was conducted only to verify that our correlation hypothesis was correct and whether more interviews and analysis were called for.

All testing sessions were administered by the same experimenter and were videotaped for later coding and analysis. For each subject we compared the details of their gestural response. Subjects did not all necessarily produce unprompted gestures at the same moment. In our analysis, we focused on the correlation between gestures and adjectives although many gestures accompanied adverbs and verbs. Verbs, though, seem to be the ultimate grammatical category to be accompanied by gestures: *He goes away* or *il s'en va* may be more likely to be 'gesturized' than nominal syntagms such as *un beau bateau* or *a beautiful ship*. This could be the reason why little research had been done on the correlation between the nominal phrase and gestures. We did find some though and they are the focus of our next section.

4. Results

As McNeill pointed out, the telling of a story entails two processes. One is conveying the events of a story itself, usually in a linear sequence. The other is overtly or implicitly conveying the structure of the story including references to the object of communication. We focused on the first process, the event of the story. The tables below summarize our findings.

The conversations lasted in French on average 4 minutes 10 seconds for each subject and in English 3 minutes. Table 1 describes the number of gestures for the whole conversation. As one can observe, subjects who use a lot of gestures in one language tend to use also a lot in the other, with these gestures being similar in both languages. It seems then that the language used does not make any difference: the idiosyncratic display of gesticulating or not gesticulating could show that, in bilingualism, speaking a different language does not symbolize a different culture in the Canadian context. Kendon pointed out (1988:43) that cultures differ not only in the extent to which they employ gestures but also in the sort of information they rely upon gestures to provide. But with our experiment, subject 1 has French as her mother tongue[2] and does not use gestures whereas subject 3 has English as her mother tongue and uses gestures. The amount of gestures did not seem to be affected through the use of different languages.

Table 1
Narration Time and Number of Gestures [whole text]

	French	English
Subject 1.	4 min 10 sec [8]	4 min 57 sec [4]
Subject 2.	4 min 45 sec[62]	4 min 19 sec [39]
Subject 3.	3 min 39 sec [53]	2 min 44 sec [46]
Subject 4.	4 min 45 sec [96]	3 min 03 sec [75]

Tables 2 and 3 below show the number of adjectives and the ratio of adjectives to gestures for a one-minute sample analyzed in detail. Subjects 1, 2 and 4 were speaking more French at home than English. Subject 3 was speaking more English. In table 3, the third column shows that when the subjects were using their mother tongue, they had the tendency to use more adjectives. A discrepancy is shown with subject 2 though. This subject speaks French as her mother tongue but she uses more adjectives in English. Was it because she felt more at ease with the narrative or with the experiment in the second session? Only more data could give an explanation. In table 3 the ratio is fairly consistent for the usage of gestures with adjectives (18% in average).

Table 2
Ratio of Adjectives for the Total of Words [1 minute analyzed]

	French	English	Difference
Subject 1.	6 / 157 [3.8%]	4 / 110 [3.6%]	+ 0.2%
Subject 2.	5 / 131 [3.8%]	10 / 115 [8.7%]	- 4.9%
Subject 3.	3 / 112 [2.7%]	4 / 105 [3.8%]	- 1.1%
Subject 4.	6 / 118 [5.1%]	3 / 158 [1.9%]	+ 3.2%

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[2] Our subjects being bilingual, we used the term *mother tongue* for the language that was spoken at home the most.

Table 3

Ratio of Gestures accompanied by Adjectives [1 minute analyzed]

	French	English
Subject 1.	5 / 1 (20%)	0 / 0
Subject 2.	9 / 1 (11%)	2 / 1
Subject 3.	17 / 3 (18%)	11 / 0
Subject 4.	14 / 3 (22%)	24 / 2 (8%)

Table 4 describes the number of iconics and metaphorics found in our videos. More iconics were found than metaphorics. An example of iconics is the gesture describing the bottom of the ship (both hands flat moving left and right) while saying *at the bottom of the ship*; an example of metaphorics is the gesture accompanying the adjective *nouveau* (both hands up). This ratio in favor of the iconics could be explained by the task itself. The subjects had to summarize the events of a story. Therefore they focused on the propositional content of the story without trying to be 'expressive'. They wanted to communicate facts and to remember details.

However we noticed a difference in the number of gestures used in spontaneous conversations and during the narration. In spontaneous speech the absolute number of gestures is much higher. Again in the narration, the propositional content prevails while in spontaneous speech one expresses oneself. Thought and speech are, then, more connected in a conversation than in an imposed narration of an event outside the 'vecu'.

Table 4

Gesture Types used with Adjectives

	Iconics	Deictics	Beats	Metaphorics
	[F/E]*	[F/E]	[F/E]	[F/E]
Subject 1	2/0	1/0	1/0	2/0
Subject 2	4/1	1/0	5/0	1/1
Subject 3.	8/4	2/4	2/3	5/2
Subject 4.	5/13	1/3	9/5	1/6

*F = French; E = English.

Table 5 presents the detailed analysis of the correlation between adjectives and gestures for a one minute sample, across languages and across subjects. There we have a correlation, although slight, between the usage of metaphorics and metaphorical adjectives such as 1) *nouveau*, 9) *différentes*, 25) et 31) *hostile*, 34) *vieux*. More iconics are found with adjectives used in their literal meaning such as in 2) et 7) *parallèle* and *parallel*, 30) *drunk*, 44) *petits*, 45) *petite*. The relationship between metaphorics (metaphors on the gestural level) and abstract/figurative adjectives (metaphors on the verbal level) could be seen as redundant. What could be, then, the function of this redundancy? The gesture could express the personal and subjective judgment of what is considered by the speaker as "nouveau" or "different".

Table 5

Results : Adjectives and Gestures across languages in the one minute samples

1	le nouveau	R - L sym + up	iconic? metaphoric
7	en parallèle	R -L sym	iconic
9	il y a différentes (manoeuvres)	L only + up	metaphoric
17	c'est une confrontation hostile	R + L sym	iconic?
25	(il y a une) grosse lutte	R + L altern + up	metaphoric
31	l'équipage hostile du bateau des flibustiers	R + L asym + up + circles	metaphoric
34	leur vieux navire	R + L asym + RdownLup	iconic
2	in a parallel, very close	R + L sym + altern	iconic
16	(from their) past (exploits)	R only + down + down	iconic? deictic?
30	(all) are drunk and fall over	R + L sym + up/down	iconic
44	pour les petits (enfants)	R only + down + down	iconic
45	une petite goutte	R only + up	iconic

R = right; L = Left; sym = symmetrical; asym = asymmetrical; up and down = the movement of each hand; altern = alternatively.

5. Summary

"To consider gestures with speech is to consider two types of symbols that occupy the same moment of expression. This kind of binocular vision leads to new insights into the narrative of the language system itself. The imagistic component coexists with the linear segmented linguistic component and the coordination of the two issues gave us some insights into the processes of language and thought." (Goaldin, Meadow and McNeill:63).

The few insights we are able to share are the following. As far as findings about bilingualism are concerned, first of all we cannot conclude that there was a striking difference in the usage of gestures between languages; both gestures and adjectives varied on the individual level, although we are mindful that there should be cultural/pragmatic constraints. Second, more adjectives were used in the language labeled as mother tongue; could we say that the speech is then more personal in our mother tongue or simply more limited in the other language?

As far as the connection between the verbal and non-verbal communication is concerned, we wanted to establish whether all metaphors expressed by adjectives are also expressed in the gestures, or whether there is some complementary function of the nonverbal modality in expressing metaphorical concept without any verbal utterance. We did find a correlation between metaphorics and linguistic metaphors: adjectives were used with gestures for 1/5 of the time and these gestures were iconics and metaphorics. We also observed that gestures were used to fill gaps and silences; there could be a complementary function of the nonverbal modality when the verbal modality is not accessible. Finally, as Lakoff pointed out (1980), we also confirm that more form is more meaning: repetition of adjectives (*a big big fight)* or lengthening of the vowel (*a biiiiiiig fight*) were used to intensify the meaning in our videos. This phenomenon was also true on the gestural level: metaphoric gestures were used to give more meaning to verbal metaphors: *grosse lutte* was intensified by the reiteration of gestures; *confrontation hostile* by amplified movements.

6. Conclusion

"The conceptual structure is grounded in physical and cultural experience as are the conventional metaphors. Meaning therefore is never **disembodied** or objective" (Lakoff, 1980:197, our emphasis)." Lakoff exemplifies this linguistic embodiment with such examples as *up is good* or *good is up.* With this present study we found that gestures - such as iconics and metaphorics - are used to accompany adjectives and to express them 'bodily'. Therefore *good* can also be expressed by a gesture, i.e. a nonverbal metaphor. We can then conclude that there is a definite linguistic embodiment of verbal metaphors by nonverbal metaphors whether they are iconics or metaphorics. This link, though, has hardly ever been studied. In our view, it is necessary to investigate this connection further. This would help us to make progress in understanding metaphors in particular, and in understanding the process of meaning in general.

REFERENCES

Kendon, Adam. 1988. *Sign Languages of Aboriginal Australia : Cultural, Semiotic, and Communicative Perspectives.* Cambridge: Cambridge University Press

Lakoff, George & JOHNSON, Mark.1980. *Metaphors We Live By*, Chicago: University of Chicago Press.

McNeill, David. 1992. *Hand and Mind. What Gestures Reveal about Thought*, Chicago & London: University of Chicago Press.

McNeill, David & Pedelty, Laura . 1995. "Right Brain and Gesture." In. *Language, Gesture, and Space*, K. Emmorey & J. S. Reilly (eds.), 63-85. Hillsdale, NJ: Erlbaum.

Mendoza, Jean-Louis Juan de. 1995. Serve gauche, serve adroit., Paris: Flatiron.

Singleton, Jenny L., Golden-meadow, Susan & McNeill, David. 1995. "The Cataclysmic Break Between Gesticulation and Sign: Evidence Against a Unified Continuum of Gestural Communication." In. *Language, Gesture, and Space*, K. Emmorey & J. S. Reilly (eds.), 287-311. Hillsdale, NJ: Erlbaum.

ON THE "LOGICIST" PARADIGM IN LINGUISTICS AND SOME OF ITS POSSIBLE ALTERNATIVES

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With the emergence of the historical comparative approach in linguistics, but at least since the arrival of the Neo-grammarians on the international scene, it has been considered trivial to speak of 'schools of thought' in the history of the discipline. The PARADIGM concept, on the other hand, insofar as it has been used by philosophers and historians of science, has only recently struck root during the course of the last few decades.

This is, of course, partly understandable, since the book by T.S. Kuhn *The Structure of Scientific Revolutions,* which initiated this use of the concept in question, was only published in 1962. On the other hand, it is no longer a trivial matter, when in specific instances a new school or tendency represents ITSELF as the representative of a new paradigm (as happened for example in the case of Generative Transformational Grammar). The term PARADIGM is in no way synonymous with the expression SCIENTIFIC SCHOOL OF THOUGHT, which covers a much narrower concept. This is because the entire evolution of certain schools can be placed within the identical paradigm, including even the ones which in the customary 'revolutionary manner' negate each other's existence or at least deny the validity of each other's teachings.

There also exist examples that show two schools which, in the content of their thought-systems, stand so close to each other that the existing methodological differences between them seem to be mere symptoms of the so-called 'generation gap', although, as becomes subsequently apparent, there is a paradigmatic shift that actually separates them. In the history of linguistics there are examples of both cases: de Saussure, in reality, cannot unconditionally be viewed as a representative of a 'new paradigm' in contrast to the Neo-grammarians, although it is possible to say that thematically he had turned his back on them; at the same time I would say that between the Neo-grammarians and their predecessors there stood a real border between separate paradigms, although they simply regarded themselves as continuing to work within the sphere of historical-comparative linguistics. In any case, particular theoretical analysis is called for in order to establish WHETHER in a given discipline there are real paradigms which can be differentiated from one another; WHAT those paradigms are, and WHEN we can speak of a paradigm shift. None of this ought to be a matter of any manifestos or declarations, and certainly not a matter of the practitioners' self-reflection.

In basic agreement with Kuhn, PARADIGM to me means the dominant theoretical and methodological patterns of a body of knowledge investigated during a given period. The sum of these patterns is a generally accepted system of concepts, instruments and goals, which states as an unquestioned frame of conditions what can be basically defined as a subject of research and a scientific problem within it; specifying the methods by which research is to be conducted; giving a usable set of concepts; stating the criteria of what can be viewed as proven scientific results; laying down the forms by which results are to be presented; the ethical norms of research and publication, and so forth.

In the history of science, as is widely accepted, paradigm shifts occur from time to time. Kuhn originally argued that these shifts were absolutely radical, i.e., that the new paradigm brings into existence a new scientific world, which is noncommensurate and incompatible with its predecessor..As a result, then, there can be no debate between the paradigms, hence no disciplinary accumulation, no progress. Since this point of view had been articulated, some doubt was cast on it, and I for one, cannot accept it. I think along with others that at the very least there is a partial 'crossing point' between successive competing paradigms, and so at least the possibility of debate remains open. Due to this bridging effect, the concept of the 'accumulation of knowledge' becomes available to interpretation within the discipline. At the end of this paper I will briefly return to this question.

Let us leave these general questions for now, for I would like to speak about much more concrete issues, even though the question of scientific paradigms will remain within the scope of my theme. I would like to put forward two interdependent arguments relating to the history of linguistics: The first is connected to the LOGICIST PARADIGM, the second to some of its possible alternatives.

The substance of the first statement is that the decisively important linguistic schools of the 19th and 20th centuries are all representatives of the IDENTICAL paradigm, the one I propose to call the LOGICIST PARADIGM. I have taken the term LOGICISM from the philosophy of mathematics, where the idea is defined by the statement that every mathematical truth is at one and the same time a logical one, and that every mathematical concept can therefore be defined at the end of the day logically. (Most serious mathematicians no longer subscribe to this view, by the way.) In this sense, then, this conception defines mathematics as simply a part of the wider discipline of logic. I wish to emphasize that the term LOGICAL here can be identified exclusively as a variant of FORMAL LOGIC as it became known starting at the beginning of the twentieth century. This is basically what is called 'classical extensional logic'. In other words I make no statement about either the so-called 'dialectical logic' or other variants of formal logic that were cultivated during the past few decades. It is important to note that when we define a linguistic paradigm as 'logicist', we do not make any statement about formal logic itself. LOGICISM here means the situation when the relevant schools of thought automatically apply the postulates of formal logic to a discipline that is in reality not at all necessarily logically based, as happens to be the case in linguistics, whose task is to deal with natural languages. Consequently issues that are considered problematic are not a matter of the applied theory itself, but only the method of its particular application.

How can we prove that the whole range of the larger schools within twentieth century linguistics were in fact all representatives of the very same paradigm, that is, of LOGICISM? Basically, we must demonstrate those 'trivialities', that is, those unquestioned assumptions borrowed from formal logic, which are shared by all these schools and tendencies. On the other hand, the very same frame conditions can be shown to be part and parcel of certain tendencies within earlier traditional linguistics. In this way it becomes possible to draw attention to some continuity in the internal development of linguistics as well, a fact which has not always been sufficiently stressed.

The stated typical characteristics, which can largely be grasped through the postulate system of artificial logical languages, can be found implicitly present within traditional linguistics starting with the analyses of descriptive structuralism, while in TGG and in certain brands of logical semantics the presence of this postulate system is announced *expressis verbis* as an overt agenda. I will show here only the five most important basic conditions, or so-called 'unquestioned trivialities', and only with reference to the most typical representatives of the schools involved.

1. At the beginning of the scientific reconstruction of what makes a Language, there has to be a sufficiently defined set of elements. That they are 'sufficiently defined' means that in the course of the analysis to follow, the elements must not be redefined, but that it is the set of these elements which, with their fixed definitions, is going to define other objects. In other words, it becomes possible to say that these elements can be regarded as AXIOMATIC ones.

As far as its origins are concerned, the concept of the LEXICON or vocabulary of traditional linguistics can be drawn to our attention. In the sense of de Saussure, such an axiomatic set of elements constitutes the system of linguistic signs, regardless of any context-based variation or deviation. In descriptive structuralism this axiomatic set is the inventory of morphemes; in the various versions of generative grammar, at the beginning they were the very same morphemes, later to be replaced by sets of semantic markers and later on the assumed semantic primitives.

2. The element *qua* element can be characterized within its own frame, both formally and semantically. This triviality within traditional viewpoints manifests itself in the form of an assumption that it is possible to construct a totally comprehensive dictionary, i.e. it is assumed that not only can all the words of a language be identified and set out, but also all the meanings of those words. In Saussure's work the central concept, the linguistic sign, is made up by a connection of a GIVEN mental concept to a (though nonetheless mental) phonetic pattern, although through the category of VALUE De Saussure is distancing himself from the view that meaning can be identified directly with a mental concept which is exactly what other representatives of the paradigm do not take up from him.

The concept of MEANING in American structuralism, when the relevant practitioners became willing to deal with it, defined meaning by a rule of the use of the sign, which, it seems, could be directly related to the element itself. In TGG, meaning is a defined mental content. To summarize, in order to give a full description of the character of the basic element, one does not need to leave the frames of the isolated element itself.

3. To specify the meaning of an element is nothing other than directly to connect it to an object of reference outside of the language, that is with its DENOTATUM (a piece of reality) or with its DESIGNATUM (a mental concept, a notion). Within traditional linguistics this question was never addressed sufficiently clearly, but the references made to meaning mainly reflect the designatum-concept. In De Saussure's system at least one part of the meaning is the designatum. As far as the descriptivists were concerned, the designatum was always a taboo. Bloomfield originally identified meaning with the denotatum – and for this reason meaning was excluded by him from the field of linguistic competence. Later however, with Zellig Harris, the conceptualization that MEANING WAS THE RULE OF USE OF THE SIGN became dominant, which finally leaves us with the denotatum as well. In the conceptual framework of TGG, the identification of meaning with the designatum seems beyond dispute.

4. *The complex objects of language come about by connection of elementary objects.* This is one of the most unquestionable 'trivialities'. It is a rudimentary truism of traditional grammars, that sentences are seen as being 'composed of words'. In the Saussurean framework the formation of the sentence is the actual use in the PAROLE of the set of signs of the LANGUE. Descriptive structuralists state that utterances are built up from morphemes. Generative grammar creates a new rule-mechanism in order to combining lexical entries for arriving at sentences.

5. The meaning of complex objects is supposed to be 'calculable' through knowing the meanings of the elements and their combinations. In traditional linguistics – even though the question is not clearly addressed -- this is an implicit precondition. The full analysis or PARSING of a sentence consists of a so-called 'syntactic-plus-lexical' analysis. In other words, to know everything about a sentence means to know everything about the words within it and the nature of their combinations. This trivial conviction is also implicit in Saussurean linguistics. In the conceptual framework of the descriptivists, the meaning of a sentence is the sum of the meanings of its elements, to which TGG simply adds that there are the CORRESPONDING meanings of the elements that combine within the sentence.

To these characteristics we can add certain 'external' postulates connected to the description of language which kept being explicated continually during the course of twentieth century linguistics. First, there is the EXACTNESS POSTULATE, i.e. the requirement that language description must make use of notions and devices precisely and unequivocally.

Another general postulate is that of VERIFIABILITY: linguistic statements should be established on the basis of facts, and other facts should make it possible for them to be checked. Further, there is another widespread 'extensive' claim, that of UNIVERSALITY: from a researcher of a language results are expected which should necessarily be valid for the examination of every language. All of these points mentioned are taken as 'disciplinary criteria of triviality' by many linguists today.

The thrust of my second contention is to establish that in opposition to the LOGICIST PARADIGM outlined above, there can be and indeed there are several alternatives. It is therefore not absolutely necessary that a linguist should accept the internal and external frame conditions tacitly required by the logicist paradigm. In what follows I will refer to an order of linguistic schools and tendencies which have successfully outgrown the logicist paradigm. I hope that I will be allowed to pick one out from these, that is the one I know the best. The idea which I would like to discuss is the theory of the Hungarian linguist János Zsilka, and this we can term as the representative of the NEO-HERACLITIAN or DIALECTICAL paradigm. Of course I do not have a chance to do anything more here than partially to present but a small portion of this theory, as extant examples of Zsilka's work in the English language would be needed, something which unfortunately I do not have at my disposal. I must therefore rest satisfied with drawing your attention to this innovative work (but see Adam Makkai's English language review of Zsilka's theory in *Eurasian Studies*, 1995.) My task here is to show the refutability of the logicist exigency that I have laid out above, with the aid of Zsilka's conceptualizations and the inferences we can draw from these. Let us look at each of his major points in turn.

1. The set of elements cannot be taken at one and the same time to be both AXIOMATIC and INITIAL. The elements furthermore only exist in their complexity; this complexity in both its diachronic and synchronic sense is primary in opposition to the element proper. Those elements which in their complexity confront us and with whose analysis we can begin (for example the words in a sentence), support in most cases already very complex meanings. These elements cannot in any case be treated as being axiomatic. If however we start with elements treated as simple ones, for instance from words picked out from the dictionary, then as the analysis progresses, our initial assumption becomes falsified step by step, and this reveals that the internal structure of these elements is in reality highly complex. For example we start from the 'proper' meaning of a word, but end up with one which is eventually completely new, i.e. we get to a metaphorical meaning which only partially contains the meaning that we started from. The axiomatic set of elements imagined by Logicism, in which a preliminary list could be made of the elements characterized by their properties given once and for all, is in reality nothing more than a mere abstraction, and due to this it is not a real starting point for any meaningful analysis. The elements providing the real starting point are, in turn, of a non-axiomatic nature.

2. From this it follows that elements taken in isolation cannot be characterized semantically. By the way, they cannot be characterized formally either. Let us only think of the problem of the opposition between homonymy and polysemy, in connection with which the formal identity of an element is at stake, that is, whether it is exactly the same element under consideration, or whether we are dealing with more than one, incidentally similarly formed elements. It is clear that if an element is defined within the complexes that it happens to be an element of, then it is impossible to characterize it without reference to these larger complexes. More

precisely, it is only possible in the way that Logicism lays out, namely when instead of its semantic analysis, we circumscribe the CONCEPTUAL DESIGNATUM of the element.

3. The specification of meaning does not merely mean a specification of the denotata or the designata, neither can it be regarded as some function relating linguistic elements to denotation and designation. Meaning is in any event a phenomenon which is to be found WITHIN a given language. As far as I can see the problem, what is at issue is the integrational relation of elements, structures, patterns; that is to say, a different range of linguistic objects. The totality of linguistic relations associating one linguistic object with other objects is not present at the moment. As far as the denotata and the designata are concerned, that is, the external points of reference, it is only possible to relate to them THROUGH meaning. The decisive question in connection with meaning is therefore no longer 'what does it bring to mind?' which is how logicists seem to have conceptualized it, but 'through what mechanisms does it conjure up what it brings to mind?' If it were not like this, and the meaning came, so to speak, into the language from somewhere outside, language could only label those things which were external to it, those things which existed prior to language itself. In reality, however, language produces new meanings from one day to the next, and in this way language itself shapes the world, and does not merely reflect it. In other words language and the Real World live in an ECOLOGICAL SYMBIOSIS with one another.

4. What is complex in language can be so complex not simply because of and by linking independent elementary objects, the same way as what is 'elementary' may not necessarily be 'simple'. If for example I use a verb outside its proper or 'first' meaning, i.e. if I use it metaphorically, or if I use a noun in the place of a sentence, then the result must be complex *par excellence*, but not through the manner in which it was put together. Furthermore, a structure consisting of several elements can eventually play a certain subsidiary, analogous, and simple role within Language. The elementary–non elementary and simple–complex dichotomies do not directly translate across one another.

5. The consequence of the foregoing observations is that the meaning of a complex object can nearly never be inferred from the meaning of its constituent elements. What is at issue is not only the point which has become so customary to stress, that 'the totality is always much more than the sum of its parts', [i.e. the IDIOMATIC PRINCIPLE], but also the issue that was stressed in the previous point that the individual elements themselves are most often also highly complex. What emphasizes this especially is the possibility for words to substitute entire sentences, the way in which the grammatical structure absorbs words and other structures, which cannot be really seen directly.

Let us take for example Chomsky's famous 1965 sentence: *Sincerity may frighten* *the boy*. It is clear that in this case *sincerity* does not play the customary role in the way its lexical meaning would suggest, as the sentence would come to mean 'the boy can be frightened by the manifestation of sincerity' or 'the boy can be frightened by the fact that from time to time he meets people who do not lie'. It is clear that in this case *sincerity* is used in place of a quasi-sentence: 'the information which they bring to the boy's knowledge under any circumstances, no matter what the consequences.' The true meaning of the sentence is something like 'if reality were to come home to the boy, this event would frighten him'. Assuming that it is a set of the singular meanings of *may, frighten, the* and *boy* which contribute to the total meaning of the sentence, in such a way as to allow the total meaning to be inferable from the meanings of the individual constituting elements, in this context the word *sincerity* would have to mean 'the reality which human beings report in any event, whatever the consequences.' The problem is that no dictionary would ever ascribe this meaning to the lemma *sincerity*. Therefore we do not understand the sentence simply by placing together the dictionary meanings of its elements which play a constituent role within it.

All this amounts to the following: It is not so much that the meanings of complex aggregates can be really understood by beginning with the elements, but the other way around: we understand individual elements on the basis of understanding the complex in which the element occurred. Furthermore, this also means that it is IN PRINCIPLE IMPOSSIBLE to produce an exhaustive dictionary of any natural language. Even if such a dictionary were to be produced on a megacomputer and every new meaning occurring in a given language were to be added to the loaded entries, this would be merely a new representation and re-assessment of data, but no real contribution to an understanding of the processes by which the language functions; nor would it predict such processes in the way that logicists still so readily expect from their theories.

I would like to return briefly to those issues which pertain to the aforementioned 'external' postulates, which I described above after the five 'unquestionable trivialities', in order to be able to make the following objections:

The EXACTNESS CLAIM means precisely that we are dealing with starting elements which are defined once and for all, i.e. that we are closing, in principle forever, the possibility of reconsideration and redefinition. This to me would simply represent a block to the ability to understand language and to become immersed in its study. The basic POSTULATE OF VERIFIABILITY simply means that scientific discovery can be based on facts. What the facts themselves are, however, is decided by the body of conceptual and methodological theory which is adopted, and this can be independent even of the stance of a given researcher. Finally, as far as EXTENSIVE UNIVERSALISM is concerned, I believe, it can never be applied to concrete results -- for example an analysis of the structure of the meaning of one verb in a particular language will never completely correlate with the analysis of the most closely comparable verb in another language. What can be universal are the principles and the mechanisms of interdependence, but these are not questions of direct evidence.

It is really no surprise that the postulate system of the logicist paradigm stands in direct contradiction to the actual nature of language. In the last analysis the logicist paradigm is nothing else than the application of protocols of the postulates of formal logic, logical languages or 'calculi' to natural language, when it should be common knowledge that these calculi were originally designed for the description of the natural sciences. Originally, such artificial or 'regular languages' were deliberately constructed in order to rule out certain qualities of natural language which was seen to be full of imprecisions. It would be a miracle if from the principles of 'R-LANGUAGES' it would be possible to describe the properties of natural language, which is, as some writers would say, ECOLOGICALLY COMPLEX.

The inadequacy of the logicist paradigm should be obvious by now. I have tried to show how there can exist in linguistics newer, more sensitive non-logicist paradigms to replace it. Obviously there will be several of these as time goes on. Colleagues at this Forum have a wider international insight than do I into the emerging research directions. We do have several options as mentioned in the abstract.

First, there is the neuro-physiological or experimental-cognitive paradigm, that sees language as a brain function, as evidenced by the contributions of Lamb and Paradis at the present Forum. There is the ecolinguistic approach of Fill, Finke, Makkai and others, which sees language as an integral part of any given community of speakers who recreate meaning each time a new utterance is made. There is Zsilka's NEO-HERACLITEAN theory with which I am most familiar; this, in part, could be grouped with the above mentioned ones. There is, furthermore, the approach through interactional psychoanalysis which maintains that speakers are always participants in mini-dramas, as in the work of R. J. Di Pietro, but also in Vigotsky's socio-psycholinguistics. Some neo-Humboldtian conceptions can be referred to as representatives of an alternative paradigm.

The important thing is that they all share the assumption of the inadequacy of the logicist paradigm.

Among established, better known theories of language which are not based on logicism, scholars are most familiar with Pike's TAGMEMICS, Halliday's SYSTEMIC-FUNCTIONAL GRAMMAR, and Lamb's STRATIFICATIONAL GRAMMAR. S. K. Shaumyan's APPLICATIVE-GENERATIVE GRAMMAR shows a curious overlap between logicism and a semiotically based general theory of human communication. Shaumyan's work, in other words, also illustrates the point I made earlier, the fact that extremely valuable work can be performed by individual thinkers who straddle more than one scientific paradigm simultaneously.

The question of how a concrete alternative paradigm would relate to the logicist paradigm in the long run is one which is more difficult to answer and this, of course, brings up the wider problem of how to compare two different paradigms in the first place. But this question would lead us too far. It would be simplistic to say that abandoning the logicist paradigm due to its contradictions with the actual nature of language, we must end up with the conviction that any non-logicist form of thought in itself could do better. Representatives of the logicist paradigm would be able to retort with some justification saying that our argument, too, has been articulated within the framework of some paradigm or another, and that any statement about the 'actual nature of language' is in itself an idea which is dependent on a particular paradigm.

For this reason I consider it important that we begin to think in terms of a TRANSCENDENCE OF PARADIGMS. Everything that we know about paradigms from Kuhn and his followers makes it clear that in every paradigm it is possible to find a wide range of arguments and discoveries that would simply be impossible to formulate in the language of another paradigm, or not worth transferring. I think, however, that the real and lasting scientific results of work done in one paradigm should, in principle, be salvageable and transferable into other paradigms as well. If the really most important findings of a paradigm [A] could be 'transferred to,' or FORMALLY MAPPED ONTO a paradigm [B], in such a way that this paradigm [B] would be able to find stronger and wider explanations for the facts to be explained, we could then state that paradigm [B] represents a stronger theoretical base than does paradigm [A]. If later a paradigm [C] should arrive on the scene, which has a similar relation to paradigm [B] as [B] in earlier days had to paradigm [A], then, I believe, it is appropriate to speak – at least in connection with the relation between paradigms [A] and [B] – of true scientific progress.)

In another paper I could perhaps show that a Zsilka-style conceptualization of language could be seen as a stronger theory than, say, the conceptualization of TGG which is, for scholars of my generation, the top representative of the logicist paradigm. Here I wish to state though that from every non-logicist paradigm desiring to see itself as superior to its logicist alternative, one must expect exactly the same rigorous scholarly standards. The first step, of course, would be to determine the exact content of the logicist paradigm and the conditions by which it can be superseded. But the logicist paradigm in its heyday was also a step in the direction of understanding the nature of human languages, and in no way is it simply sufficient to deny its validity – one must understand and salvage from it everything which is worthwhile. If humanity is to reach the maturity in the twenty first century that everybody is hoping for, if we are not crazy enough to destroy ourselves through the application of inhuman technologies, then the value of humanity and objectives which mirror human essence must be placed at the center of scientific thought. The nature of human language, therefore, can become once more a central problem for a rehumanized scientific consciousness, and the responsibility of linguistics can be greater than it is today. At any rate, it seems obvious that we must leave the package of the logicist paradigm in the twentieth century.

REFERENCES

Bloomfield, Leonard. 1933. *Language*. Henry Holt & Co. New York.

Carnap, Rudolf. 1931. "Überwindung der Metaphysik durch logische Analyse der Sprache." *Erkenntnis*, 2/4.

— 1936/37. "Testability and Meaning." *Philosophy of Science*, 3/4 – 4/1

Chomsky, Noam A. 1957. *Syntactic Structures*. Mouton, The Hague.

— 1965. *Aspects of the Theory of Syntax*. MA. M.I.T. Press, Cambridge.

Feyerabend, Paul. 1975. *Against Method*. NLB, London.

Halliday, Michael A. K. 1978. *Language as Social Semiotic*. Edward Arnold, London.

— 1985. *Introduction to Functional Grammar*. Edward Arnold, London.

Havas, Ferenc. 1982/a. *A Language Typology Reader – II. Stadial Typology* [In the original Hungarian: *Nyelvtipológiai szöveggyûjtemény – II.* Tankönyvkiadó], Budapest.

— 1982/b *Semantics in Generative Grammar. A Reader.* [In the original: *Szemantika a generatív grammatikában.* Tankönyvkiadó], Budapest.

— 1985. *On the Status of Dialectical Language Analysis.* [Original: *A dialektikus nyelvelemzés státuszához*. Vol. #4, Works of the Linguistics Research Group, Department for General and Applied Linguistics, University ELTE], Budapest.

— 1987. *Langue, pensée, conscience.* Annales Universitatis Scientiarum Budapestiensis de L. Eotvos Nominatae, Sectio Linguistica , XV.

— 1997. "Language," "Language and Mind," "Language Typology." Entries in the Pannonian Encyclopedia, Budapest.

Kuhn, Thomas S. 1962. *The Structure of Scientific Revolutions.* University of Chicago Press, Chicago.

Lakoff, George, & M. Johnson. 1980. *Metaphors We Live By.* University of Chicago Press, Chicago.

Lamb, Sydney M. 1966. *Outline of Stratificational Grammar*. Georgetown University Press, Washington, D.C.

Langacker, R. W. 1991. *Foundations of Cognitive Grammar.* Stanford University Press, Stanford.

Makkai, Adam. 1972. *Idiom Structure in English*. Mouton, The Hague.

— 1993. *Ecolinguistics: Toward a New Paradigm for the Science of Language?* Frances Pinter, London & Akadémiai Kiadó, Budapest.

— 1995. Review article of János Zsilka: *Nyelvi rendszer: palintónia* [*Linguistic System: Palintony*] in *Eurasian Studies* 67 [1995]:209–215. [The original work is in Hungarian published by the Linguistic Research Institute of the Hungarian Academy of Sciences in 1993, 193 pp., 210 figures.]

Makkai, Adam & Lockwood, David G. 1973. *Readings in Stratificational Linguistics.* University, Alabama. [University of Alabama Press.]

Pike, Kenneth L. 1967. *Language in Relation to a Unified Theory of the Structure of Human Behavior*. Mouton, The Hague.

Shaumyan, S. K. 1985. *A Semiotic Theory of Language.* Indiana University Press, Bloomington IN.

— 1981. *Dialectics of the Motion Forms in Language.* Akadémiai Kiadó, Budapest.

Vigotsky, Lev S. 1934. *Misleniye i Rech.* Akademiya Nauk, Leningrad. [*Thought and Language,* in Russian.]

Wittgenstein, Ludwig. 1922. *Tractatus Logico-Philosophicus.* Routledge & Kegan Paul, London.

— 1953. *Philosophical Investigations.* Basil Blackwell, London, MacMillan, New York.

Zsilka, János. 1978. *On the Integration of Meaning.* [Original: Jelentés-integráció.] Akadémiai Kiadó, Budapest.

LITERACY BASED UPON THE LETTER NAMES

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Along with reports about the millions of children unable to read English at the level expected in each grade of school, we hear much discussion of the causes and the possible remedies. I can contribute an historical perspective, understanding how the adaptation of the alphabet to our language has become so complicated and unwieldy. And yet, enough of the original genius of the alphabet lingers in modern English so that it can be rationally, methodically introduced to beginners.

Many scholarly readers know how the Phoenician consonantal alphabet was transformed in Greece by making certain letters express a vowel instead. As a result, writing and reading Greek became simple skills, intrinsically easy to acquire. No doubt some children caught on faster than others, as can be observed in any modern setting; but the system itself was neat and straightforward. The letter names, taken over from Phoenician but adjusted to the phonology of the Greek language, were acrophonic: The initial sound of each name carried the function of the letter. Thus the first letter, called ἄλφα, stands for the vowel [a]; the second letter βῆτα for the consonant [b-]. Greek phonology distinguished consonants from vowels more sharply than in many other languages; a consonant (σύμ|φωνον) could not be uttered all by itself. So for practice, the teachers devised syllable exercises, of which a few specimens have come to light:

BA	ΓA	ΔA
BE	ΓE	ΔE
BH	ΓH	ΔH
BI	ΓI	ΔI
BO	ΓO	ΔO
Bϒ	Γϒ	Δϒ
BΩ	ΓΩ	ΔΩ

The acrophonic names comprised a pretty thorough inventory of the segmental phonemes. Provided that the letters were visually recognizable, the written words conveyed the essential sounds with little or no ambiguity.

The Latin adaptation made one further improvement, rejecting the useless part of the acrophonic names. The vowel letters were called simply by their sound: [a:] (not [álp^{h}a]). A pronounceable name for each plosive consonant required that it be followed by a vowel; thus [pe:] the same as in Greek,[1] but also [be:] (unlike the Greek [bɛ̂:ta]), [de:] (unlike [délta]), etc. The other consonants got a pronounceable name by prefixing a similar vowel: [ɛf], [ɛl], [ɛm], etc. So appropriate was the name of each letter to the function of the letter that any and every Latin word could be readily written down and then readily recognized by a reader with just the necessary minimum of literacy.

When the Latin alphabet was applied to Old English, it worked nearly as well; and so too in early Middle English, though it was now encumbered by some conventions which the medieval French scribes introduced, such as the digraph in *chatel*, *bench*, *which* (Old English *hwilc*). After that, phonetic changes shifted the English vowels drastically and modified or silenced certain consonants, too. The letter names were not shielded from the effect of diachronic phonology, resulting in a huge burden upon the principles of literacy. What had been a more or less coherent, symmetrical set of vowels and their combinations, manageable graphically within the resources of the Latin alphabet, was torn apart and refashioned little by little into a very different system of vowels and diphthongs. To take account of some changes in pronunciation, the scribes and other educated people made piecemeal modifications in the spelling of quite a few words; but they were baffled by the enormity of the problem, unable to face the need for a revolutionary departure from the tradition of elementary schooling. For after all, it was not a matter of life and death; indeed the inherited alphabet continued to work, however clumsily, enabling people to read and write English if they would keep in mind a multitude of oddities.

So, without any fundamental reform, English spelling was effectively standardized around the end of the seventeenth century.[2] Before then, a large proportion of the words in the common vocabulary had various spellings – some conservative, others innovative. The lexicographers and other unofficial authorities of that age, by a sort of common sense, fastened upon whatever seemed to be the prevalent spelling of each word. They left very little room for wavering; their disagreements, such as *-or* or *-our* in words like *colo(u)r*, *labo(u)r*, *hono(u)r*, involve less than one per cent of the lexicon. Here the vowel in question had long since ceased to be pronounced in English either like the Latin *o* or the Old French diphthong *ou*; the principle at issue was really which **tradition of spelling** should prevail.

Only to a small extent does the established spelling of English words adhere to the fundamental rule of the alphabet before it was adapted to English: that each letter has the sound given by its name. Out of the many hundreds of words that I have used up to this point in my paper, only four would meet that simple test: *I*, *so*, *be*, *no*. In any Latin text, on the contrary, the letters directly reveal the sounds of all the words, with one serious defect: The vowel letters do not distinguish length from shortness.[3] That is nothing, compared to the inadequacy of the English vowel letters, which gravely compromises most attempts at a so-called "phonic" approach to reading.

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[1] The common English pronunciation of the Greek letter Π as [pai] (just like *pie*) reflects a development in late antiquity, after the earlier sound [e:] merged with [i:], and so the letter name was spelled out πῖ.

[2] I have discussed this in "Orthography and Standard Pronunciation," *LACUS Forum* 15, 497-98.

(1) To begin by learning that the sound of the letter E is *e*, as in *me*, salvages something of the pristine rationale of the alphabet. It postpones the untimely fact that this is not so in the great majority of words. But I would argue that the beginner is best served by being introduced to the alphabetic system at its best – words with just one vowel E, I, or O and one or more consonants that function just as anyone would expect from their names.

There are about thirty such words, including the ones already mentioned. In the course of the Great Vowel Shift in late Middle English, a few consonant groups protected the quality of [o] in front of them: *old, bold, fold, mold, sold, told; most, post* (and the plural posts); *bolt, dolt, jolt, molt, volt* (and their plurals).[4] *-ld* also made the preceding vowel [i:] change to [aɪ] as in *mild*; and a couple of other groups had the same effect: *bind, blind, find, kind, mind*; and *pint* (along with the plural *pints*). A small range of sentences can be put together, such as I SOLD OLD POSTS; BE KIND; FIND ME. For each of them a clever illustrator could draw a neat tableau.

The timing of a for the beginner depends on how the letter name is pronounced. If it is [ɑɹ] in the usual American fashion, or trilled as in Scotland, it could be put in with that first set of consonants and exemplified by the two-syllable word remind (perhaps also *revolt*).[5] But where it is called [ɑ:], it belongs with the residual letters whose name is no clue to their function (see section 4 below).

(2) Once the learner has grasped what is intrinsically easiest, there is room for difference of opinion as to the next step. I think it should be the subsidiary role of E in maintaining the natural function of each vowel letter. That comes through most readily in the double E, as in I SEE; I NEED BOLTS.

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[3] When the Latin population ceased to make this distinction, probably in the 2nd century of the Christian era (see my review of Ernst Pulgram, *Practicing Linguist: Essays on Language and Languages...*, in *General Linguistics*, 31 [1991], 57-58), elementary teachers were freed from dealing with the former complications such as the letter E being pronounced [e:] in *ēmit* 'he/she (has) bought' but [ɛ] in *ĕmit* 'he/she buys'. Only advanced classes, studying the meters of the classical poets, needed to recapture in some way the significance of vowel length.

[4] Also DON'T, if a word with an apostrophe is admitted so early in teaching how to read. In Britain, where the spelling *mould* and *moult* prevails, these words would confuse a beginner.

[5] A less desirable example would be *rind*, because the word is relatively rare. And *fro*, while simple phonetically, occurs only in the phrase *to and fro*, which would confront the beginner with the anomalous O in *to*, besides the A varying between [æ] and [ə].

The E accompanying I or O has the same effect on them, with or without a consonant in between:

pie, die, lie, tie (as well as the past *died, lied, tied*),
time, dime, life, pile, mile, smile, dine, etc.; a whole utterance such as
NINE FINE KITES LIKE MINE;
toe (besides the less familiar words doe, foe);
bone, stone, stole, pole, mole, poke, spoke, smoke, note, dose, etc.

There are likewise many common words with A-E separated by a consonant: *safe, made, fade, spade, make, take, lake, flake, snake, pale, stale, same, name, tame, flame, lane, tape, base, date, late, skate*. Also U accompanied by E can be safely introduced in the phrase NO USE, the word *mule* and perhaps a few others. Caution, however, is needed because the prevalent pronunciation of English in North America has lost the distinction between u [ju] and [u] after most consonants, other than a labial or a velar. Only in the regions where this neutralization has not gone through is the regular use of subsidiary E evident in *blue, due, duke, tube, tune, plume*.

Along with a much enlarged inventory of words employing the five vowel letters, more consonants can be brought in:

Z in *size, blaze, doze, zone*,
C in *ice, dice, mice, ace, face, lace, pace, place*,
G in *age, page*,

also J in *joke* and V in *dive, five, vine, stove, vote, save*, if we have postponed these two consonants because their occurrence in *jolt, volt* and *revolt*, words less familiar to children, makes them unsuitable for inclusion among the easiest consonants.

(3) Because the Great Vowel Shift, more than anything else, has imposed upon us a flexible treatment of the letters, the next lesson would logically present the most frequent sound of each vowel letter, in sharp contrast to the name itself; for example, I BIT (the past of I BITE); I FED IT (the past of I FEED IT). The two main sounds of the other vowels are illustrated in I TAKE NAPS; NINE VOTES, NOT TEN;[6] NO MULE LIKES MUD. Now the beginner knows how to handle a much larger vocabulary, and comes to recognize, furthermore, a principle indispensable to the operation of the alphabet in English: that many letters function in a manner virtually

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[6] This is to replace I STOLE MOPS, which (as Ruth Brend remarked) means something that a child should not be exposed to.

independent of their name.[7]

(4) So he or she should be ready to learn the use of H, W, and Y as consonants, each with a clear, easy sound at the beginning of a word, as in HELP; WAKE UP; YES, although that sound bears no direct relation to the present letter name. The other uses of these letters can be brought in gradually; and this applies to several more consonants, such as S which has the sound of Z in some environments, or C which has the sound of K except when followed by E, I, or Y.

(5) In still a different way the letters X and Q are anomalous, although their function is plainly derivable from their name. Right after introducing X in words like *mix, box, fox*, it is wise to point out, I think, that X has the two sounds of K plus S; for example, NO TAX ON TANKS.

The peculiarity of Q is (of course) its restriction to the combination QU as in *quiet*. Since the U here functions as a consonant, unlike the vowel sound in *mule* and the other vowel sound in *mud*, QU may serve for a fairly easy transition to the digraphs that complicate the spelling of English so much but are indispensable for even the simplest text.

What I have presented up to now is the more rational component of English alphabetic writing, but it suffices only for the production of short, carefully contrived sentences; nothing composed for any ordinary purpose of communication – let alone, for esthetic delight – could be so hemmed in.

(6) The most obvious need to learn a digraph appears in the definite article. I would first show it followed by an adjective or noun that begins with a vowel, such as THE OLD MAN; for here the E has its own sound, and the novelty for the child to grasp is the function of the letters TH together, regardless of what sound one of them would have without the other. After this combination of two consonant letters is grasped, it comes naturally to read THE MAN with the minimal vowel sound. No variety of the alphabet, with the probable exception of the Cyrillic for Church Slavonic, came up with a special letter for it, or a name. The phoneticians, however, often apply a term from the medieval grammars of Hebrew, where it is properly pronounced [šəwɔ]. In English words of two or more syllables, this minimal [ə] is more frequent than any other unaccented vowel sound. So a reader must in time learn, at least passively, to correlate the indistinct transitional sound with the letter A, E, I, O, U, or even Y in certain words such as *anonymous*.

That is about as far as elementary instruction for English-speaking children can be based upon the axioms of phonology. Beyond that they have much to learn in detail, including the silent letters apart from E and a large set of homophones differentiated in spelling.[8] Some of the difficulties fall into patterns that are more or less coherent; these can be taught systematically rather than as so many individual oddities. However, other pedagogical concerns – apart from anything strictly linguistic – may well take precedence.

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[7] As my children, one after the other, were learning to read, I found it most helpful, and not at all difficult, to have them recognize the difference between "E's own sound" (as in *feed*) and "the other sound of E" (as in *fed*), and likewise with the rest of the words.

From personal experience I know better than to posit that everyone needs an orderly, methodical presentation of the extent of correspondence between the alphabet and the sounds of the English language. I started reading around the age of four, without deliberate instruction from anyone; my mother would read to me, and afterwards, by myself, I began to read the same books in a low voice. No doubt I had played with alphabet blocks still earlier and also seen my six-year-old brother reading; but I do not remember any of that. I went on to open up and read books that to me were quite new; no words in them puzzled me.

All my children learned to read at home before kindergarten. Most of them were guided to some extent by my wife; but one daughter, Eve, taught herself when she was three years old, much as I had done. It can scarcely be an accident that later she learned more languages than her brothers and sisters. From the time that she, or I, had grasped the English language orally, written English soon became understandable; whatever complexities might confront us, we could figure them out. And with literacy in English, we had no trouble studying other languages.

Children, as well as adults, differ from one another; what some grasp easily, others find perplexing. But in most cases those who see that reading is the thing to do can learn how, with only a modicum of encouragement. To help them, more than any one **method**, they need **a skilled and flexible adult** who thoroughly understands the rules and the quirks of the written language. That may be too much to expect of elementary schoolteachers. However, they would be better qualified if in college they studied and some of them mastered the essentials of phonology and graphemics, with particular reference to the confusions in English.

If professional linguists on the faculty can communicate successfully with the future schoolteachers, our expertise will benefit large numbers of children. More linguistic research is probably focused nowadays upon the problems of literacy than formerly, although some fine linguists in the past, including Leonard Bloomfield, gave at least occasional attention to such problems.[9] We need to put aside a scientific or philosophical bias, which arises as a sort of corollary from the maxim that writing is nothing but a secondary representation of the sounds of spoken languages. Rather, the written form of many languages is so prominent that not just practically but intellectually it is more than a mere surrogate for speech. Indeed, when it is greatly at odds with the sounds of a language, as in English, we need to study both the sounds and the letters all the more carefully.

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[8] Not surprisingly, there are homophones of all four words with simple, rational spelling that I had occasion to use in composing the first couple of pages of this essay: *I, eye; so, sew, sow; be, bee; no, know.*

[9] E.g., *Language* (New York: Henry Holt, 1933), 501: "The real factor of difficulty is the host of irregular spellings which will remain, no matter what values are assigned as regular. Two devices obviously demand to be tried. One is to teach children to read a phonetic transcription, and to turn to traditional writing only after the essential reading habit has been set up. The other is to begin with graphs that contain only one phonemic value for each letter ... and either to postpone other graphs until the elementary habit has been fixed, or else to introduce them, in some

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rationally planned way, at earlier points." I strongly approve the principle behind his latter alternative and have developed it here in some detail. The former one – teaching a youngster to read, first of all, English rewritten in the International Phonetic Alphabet (or some modification of it) – strikes me as chimerical.

After I read this paper to LACUS at York University, Sydney Lamb very helpfully called my attention to Bloomfield's book *Let's Read: A Linguistic Approach*, which after his death was prepared for publication by Charles L. Barnhart (Detroit: Wayne State University Press, 1961), using the materials that Bloomfield had put together to teach his son at home. Bloomfield did not carry out his idea of resorting to a phonetic transcription. Neither did he give priority to the sounds expressed by the letter names, as I do; instead he introduced (p. 40)

"VOWEL LETTERS
a as in *cat* o as in *hot*
e as in *pet* u as in *cut*
i as in *pin*"

besides "c as in *cat* ... g as in *get*". This has a disadvantage, shared by many varieties of the "phonics" method: From being exposed so early to words such as *get*, the beginner is liable to form a **general** expectation that the name of the letter G (or E) will have nothing to do with its sound.

DISCOURSE ANALYSIS: ITS CONTINUING RELEVANCE AND ITS RELATION TO COGNITIVE STUDIES[1]

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The Summer Institute of Linguistics

1. The Continuing Relevance of Discourse Analysis to Linguistics

The continuing relevance of discourse analysis, or textlinguistics, to the various aspects of linguistic study is a theme which apparently requires perennial reaffirmation. Linguists are prone to be afflicted with a kind of myopia in which attention to the many details necessary to the study of any language – and cross-language abstraction and generalization – absorbs us to the point where we lose sight of the broader picture. But it is precisely the broader picture, i.e., concerns of near and far context, which provides the explanatory power in regard to many of the details which clamor for our attention. There is simply no satisfactory way without resort to context to describe the use of deictics and articles, of pronouns, of conjunctions and other sequence signals, of mystery particles, of most variations in word order, of nominalization and topicalization, or even of the use of temporal and locative expressions, and of adverbial clauses. To use an old Chomskyan distinction, we can achieve a kind of descriptive adequacy without resort to contextual concerns but not the level of explanatory adequacy. I argued all this back in 1979, but the passage of the years has strengthened rather than weakened such arguments.

Thus, I argued in 1979 that the verb system of a language, distinctions of tense, aspect, mood, and voice, cannot be rationalized apart from context. The crucial problem here is that while one can describe in detail the verb system of a language paradigm by paradigm, morpheme by morpheme, and allomorph by allomorph – often revealing intellectually satisfying patterns in the process – one can not account well for the uses of any given form at any point within the confines of individual sentences. The rationale ultimately lies in the flow of discourse. A good example of a pedagogical bind experienced here is that in regard to the uses of the French *imparfait* in beginning French courses. Typically pages are devoted to the effort and tortuous explanations are sometimes given, when resort to a short narrative text could more clearly and succinctly illustrate the manner in which the *imparfait* is typically employed to distinguish background situations and happenings from the foregrounded narrative mainline where either the passé simple or the passé compose is employed.

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[1] This paper was presented as an introduction to a panel on discourse analysis.

Actually, however, I could have been less strident in this regard. Others were saying something similar to what I was saying at somewhat the same time or earlier but I did not have access to their contributions in German and French. And since then, still others have been making similar affirmations. In respect to the former, Harald Weinrich (1964) and Benveniste (1974) could have been cited. At all events, Paul Ricoeur, building on the contributions of these two, in his three-volume work, *Time and Narrative,* which appeared in English 1984-1988, has insisted that **tense must be studied in connected text, not in isolated sentences,** and that **the narrative use of tense primarily has to do with foregrounding and backgrounding.** What Ricoeur says may be briefly summarized by saying that the use of the various tenses gives a primary cue in regard to the **followability** of a story (abstracted and summarized from *Time and Narrative,* vol. 2, chap. 3; cf. Longacre 1993). Ricoeur's arguments at this point make sound linguistic sense. If the intent of language is not simply to embody abstract design but to communicate, and if communication is mediated via discourses rather than in isolated sentences (although one-sentence discourses occur), then whatever contributes to the followability of a discourse fulfills a basic need in communication – and Ricoeur is simply insisting that skillful use of the various forms of the verb in a language is crucial to such followability.

2. The Relevance of Cognitive Studies to Discourse Analysis

But if discourse analysis is of inescapable relevance to linguistic analysis, it must be also insisted that cognitive studies are of inescapable relevance to discourse analysis itself.

2.1. Cognitive Relations that Underlie Sentences and Paragraphs. An autobiographical note is perhaps illuminating at this point. In the early 1970's, stimulated by personal contacts with John Beekman, I began to take account of in my writing, teaching, and in the supervision of field workshops what for want of a better name I called "combinations of predications," whether intrasentential or intersentental. These were such relations as conjoining, contrast, comparison, alternation, temporal relations including succession and overlap, implicational relations including various kinds of conditionality, causation, paraphrase, illustration (whether simile or example), attribution of speech or awareness, and a few others (Ballard, Conrad, and Longacre 1971a and 1971b). Because of a certain broad resemblance of these relations to the rather sketchy apparatus of the statement calculus, I conceived of this set of relations as an expansion of the latter (Longacre 1970). The usefulness of such an expanded apparatus was immediately evident in the analysis of both sentences and paragraphs in several languages. But it did not look very "linguistic" as linguistics was practiced in those days a quarter of a century ago! One graduate student waylaid me after class one day and roundly reproved me for taking up student's time with stuff that no respectable linguist was using or teaching. But soon afterwards J. Grimes (1975) posited similar relations and called them "rhetorical predicates." By the time that Mann and Thompson (1983, 1987a, and 1987b) published their materials – called "rhetorical structures" – many linguists were ready to recognize relations of this sort and use them. Meanwhile Beekman (1970), and Beekman and Callow (1974), and Beekman, Callow, and Kopesic (1981) continued to develop Beekman's original insights and employ them on a broad front. Halliday and Hasan (1976) evolved a similar catalogue of relations, tied, however, to particular English conjunctions and sequence signals. The result: five separate catalogues of interpropositional/rhetorical/semantic relations all covering the same ground in slightly differing ways. The convergence of these separate but similar lines of research has been reassuring; presumably we have all been converging on some level of reality.

Looking back, what is the possible moral of this story? The rock-bottom usefulness of these relations, variously conceptualized and arranged, is such that it proves almost impossible to ignore them. Are they "linguistic" or was my graduate student correct in reproving me for teaching them in a linguistic classroom? Have Beekman and Callow been more on target in calling them "semantic relations." And, if so, who would be so rash as to exclude semantics from linguistics? Perhaps "rhetorical relations" (pace Grimes, and Mann-Thompson) is the least appropriate of the terms which have been suggested. Why not recognize that in reality we are concerned her with *cognitive* relations? Use of this term would highlight the fact that such relations are part of our apparatus for perceiving and reacting to factors in our environment, whether natural or human. We intuitively group certain phenomena, individuals, or events while contrasting or separating others. So much for the experiential basis of conjoining and contrast. The recognition of such a relation as alternation is likewise not merely an academic exercise. When, e.g., a mountain climbing expedition is overtaken by an icy snowstorm on a treacherous slope and faced with the choice of arranging for a shelter or faced with the prospect of disaster and death , then mutually exclusive alternatives have a grim reality. Nor is it merely a logical exercise in conditionality or contrafactuality to say to a friend, "If you had stepped off the curb just now into the path of that speeding car, you would have been killed" (Longacre 1996.55-59).

The practical upshot of accepting these and other cognitive categories into our linguistic studies is their explanatory value on a broad front, e.g., in relation to conjunctions, sequence signals, or "mystery particles," word order, sentence types, paragraph types, and other features. While the cognitive relations are there, whether or not marked in some overt or approximate way, nevertheless, when such signals do occur, we are able to posit their functions by reference to the relations that they mark. Likewise, changes in word order that throw parts of sentences or parts of paragraphs into opposition with each other are better understood as partial markers of cognitive contrast that we as human beings recognize. Thus earlier Biblical Hebrew and certain Indian languages of Mexico have no word for "but." Nevertheless, in other more subtle ways, viz. variation in word order, use of antonyms and opposed entities or roles, etc. contrast is portrayed.

2.2. Cognitive Templates that Underlie Whole Discourses. The general layout of whole discourses must be in some way perceivable if the reader/listener is not to be hopelessly entangled – or consummately bored. What makes a story a story? It must be more than a recital of successive happenings--although this is an integral part of storytelling. The recital of bare happenings in sequence belongs to the testimony of a witness in a court trial where such a recital is appropriate and necessary. But a story must have something more. If someone comes up to another and begins a bare recital of what he or she has done during the past morning or the day before with the assumption of finding an audience, disappointment is insured. The inevitable reaction of the hearer is "Why are you telling me all of his anyway?" Rather, a story must involve some departure from routine, or better, a routine sketched and broken, if anyone can be expected to listen to it. It must, in a word, have an *inciting incident.* But this, in turn, is part of a broader schema. I have sometimes made students unhappy in the classroom by giving examples of routine broken by an inciting incident without going on to sketch the rest of the story. Students want to know "What then?" Student reaction in such circumstances confirms the existence of a cognitive template on which stories are built the world over. Although Aristotle in ancient times and "story grammarians" (e.g., Bartlett 1932) of the present have fostered and used such schemata or templates they can hardly be credited with having invented or devised anything more than the particular forms of organization and terminology which they employ.

The inciting incident calls for developing tension which culminates in a climax of action, confrontation, values, attitudes, or what not, and which in turn calls for a resolution of some sort. The maximum tension finds a release which can be happy or unhappy for the participants. The French have at this point a handier pair of terms in *nouement* (tying up) and *dénouement* (untying) than we are blessed with in the English speaking world. This basic apparatus of inciting incident, rising tension, climax, and denouement (cf. Longacre 1996.33-38) makes a story a story from Kalamazoo to Timbuctou and from ancient literature to that of the present. Whether this template is essentially a reflex of our cognitive faculties, as I believe, or whether it belongs to a "sedimented history whose genesis has been obliterated" as Ricoeur has recently suggested (Ricoeur 1991.24) makes perhaps not too much difference in that it is now an inescapable part of us. What is important to note, however, is that the basic narrative template can be almost endlessly diversified and developed by particular storytellers and writers. The template becomes a theme subject to many variations, or as Ricoeur puts it, there is a constant tension between sedimentation and innovation which "keeps the narrative tradition a living one" (p. 26). But the point is, we have certain expectations when we encounter what purports to be a story, and those expectations can perhaps best be attributed to our cognitive apparatus.

Templates for other major discourse types readily suggest themselves. I will here present only one further such template, that for hortatory discourse, i.e., discourse in which one person tries to modify another's conduct by getting the listener to do what he/she has not been doing, or to give up an activity now engaged in, or to do with greater fervor or faithfulness such an activity, or even simply to do it in a different manner. A template for hortatory discourse consists of such elements as (1) the authority or qualifications of the exhorter or adviser; (2) a problem which provokes the exhortation/advice; (3) the command element, however mitigated or disguised; and (4) motivation for following the commands, i.e., presentation of needs, warnings, and promises. Mary Breeze (1992) has suggested that a further element, enablement, can be added to the template, i.e., "You'll be able to carry out this command because..." The third presenter in this panel (Jordan) also posits enablement but as a multi-level relation which is not peculiar to a discourse-level template. Again, as with the narrative template, we can expect many variations on a basic schema. Be all this as it may, such a template as here suggested seems to fit our cognitive expectations. If someone presumes to command/advise us in regard to our behavior or our immediately projected actions, we want to know: Is this person authorized or qualified to do so? What problem or situation has provoked this discourse? What specifically is being asked of us? And, finally, what consequences follow, from either obeying or not obeying such counsel?

Other discourse templates can be suggested for other major discourse types (cf. Longacre 1992.110 and 1996.34fn). I refrain from the presentation of further templates, and voice here the caution that particular cultures distributed in time and space may develop specific templates for discourses which characterize particular facets of a culture. Here one could argue that cultural expectations rather than universal cognitive expectations are involved, but perhaps there are schemata of a certain sort which can be distinguished from the more basic templates. Thus the conventions of letter writing in the classical Greco-Roman world, on the contemporary scene and those characterizing email all differ. But whatever the social conventions which affect the layout of the letter, the content may be, e.g., narrative, hortatory, a composite of the two or still a further discourse type. Here templates of the sort posited in this paper apply. Problems of this sort and others are discussed by the second panelist, Shin Ja Hwang.

In closing this presentation of discourse-level templates, I reaffirm the strategic relevance of these cognitive structures for discourse analysis. Discourse analysis would indeed be impoverished if for some reason it was decided that it was illegitimate to build on such structures. There are certain perennial problems in discourse analysis which need the explanatory power of such templates. To return to the consideration of narrative, what guides the narrator in regard to how much detail should be given at one stage of a story versus another? Similarly, what guides the narrator in respect to how much or how little connective material (conjunctions, sequence signals, reprise) should be used at various points? When should a writer let a story explode (so as to speak) at one point versus keeping it under rigid control at other points? When should the storyteller proceed deliberately from point to point, and when should he or she rush pell-mell ahead?

Here we need to recognize in connection with the narrative template a certain natural prominence of some points on the template versus others. Certainly the inciting incident, the climax, and the denouement are three such points. They typically occur, however, along with other points of a story which are less prominent, viz. the stage of a story, and episodes scattered along the way on the road to climax and the eventual denouement. It is the writer's option to single out one or more of the three naturally prominent parts of the template for special development and surface-structure marking. I have referred to such special marking as peak-marking and to a point in the story which is so marked as the peak. There is scarcely room here to cover ground which is already covered in detail elsewhere (Longacre 1996.38-48 and in other publications from some time earlier). I simply bring up the subject of peak-marking in relation to the narrative template to emphasize the crucial role of the latter. Here linguistic concerns, the grammar and lexicon of a peak, intersect with discourse concerns rather inextricably.

Furthermore, taking the narrative template as a given, the linguistic analysis of a story can proceed as follows: (1) Watch for natural breaks in the story as indicated by linguistic marking. (2) Observe how the story is built on elements of the template. (3) Try to match naturally bounded units in the surface of the story with elements of the template. In making this matching one must allow for embedded discourses each of which exploits the template in its own right. Thus an episode of the main story may have its own internal episodic structure and its own use of the template elements. A linguistically marked peak can belong to the main or to an embedded narrative. I offer the above as a three-step procedure, which, e.g., I have employed in the analysis of the narrative structure of the Greek text of the Gospel according to Mark.

3. Some Concluding Remarks

Finally I would say a word in defense of what used to be called case grammar (and has now been absorbed into the latest version of transformational generative grammar), i.e., role structures that operate on the clause level. It seems that reference to such categories as agent, patient, and experiencer – to name only three – have a way of cropping up again and again in linguistic writing. I do not believe that they are simply surviving anachronisms from the case grammar foment of the seventies but rather that they provide points of reference that we cannot do without. And, clearly, these structures are cognitive categories. I do not mean to conclude on the note that these three sets of relations – interpropositional relations, discourse-level templates, and clause-level role structures are the only sets of cognitive categories of relevance to the linguist; others not in the scope of this paper could be cited.

The moral of this paper is that discourse analysis must unhesitatingly take account of cognitive categories on various levels. Narrow minded definitions of "linguistics" which would in a kind of purist zeal exclude reference to such categories in linguistics in general and in discourse analysis in particular are in the end self-defeating.

REFERENCES

Ballard, D. L., Robert Conrad, and Robert Longacre. 1971a. "The Deep and Surface Grammar of Interclausal Relations". *Foundations of Language* 70-118

Ballard, D. L., Robert Conrad, and Robert Longacre. 1971b. *More on the Deep and Surface Grammar of Interclausal Relations. Language Data,* Asian-Pacific Series 1.Santa Ana, CA: Summer Institute of Linguistics.

Bartlett, F. C. 1932. *Remembering*. Cambridge MA: University Press.

Beekman, John. 1970."Propositions and their Relations within a Discourse". *Notes on Translation* 37.6-27. Ixmiquilpan, Hidalgo, Mexico: Instituto Linguistico de Verano.

— and John Callow. 1974 *Translating the Word of God.* Grand Rapids: Eerdman's.

— John Callow, and Michael Kopesic. 1981. *The Semantic Structure of Written Communication.* Private Circulation.

Benveniste, Emile. "The Correlation of Tense in the French Verb". *Problems in General Linguistics.* trans. Mary & Week 1977 Coral Gables: University of Miami Press.

Breeze, Mary. 1992. "Hortatory Discourse in Ephesians". *Journal of Translation and Textlinguistics* 4.313-337

Grimes, Joseph. 1975. *The Thread of Discourse*. The Hague: Mouton.

Halliday, M.A.K. and Hasan, R. 1976 *Cohesion in English*. English Language Series; 9. London: Longman's.

Longacre, Robert. 1970. "Sentence Structure as Statement Calculus" *Language* 46. 783-815

— 1979. "Why We Need a Vertical Revolution in Linguistics". *The Fifth LACUS Forum* 1978.247-270. Columbia SC: Hornbeam Press.

— 1983. *The Grammar of Discourse*, 1st ed., chapter 8 (not found in the 2nd ed.). New York: Plenum Press.

— 1993. "Paul Ricoeur's Philosophy and Textlinguistic Analysis". *LACUS Forum* 19.

— 1996. *The Grammar of Discourse*, 2nd ed. New York: Plenum.

— In press. "A Top-down, Template-driven Narrative Analysis Illustrated by Application to Mark's Gospel". To appear in a volume edited by Stanley Porter and Jeffrey Reid, Sheffield, England: Sheffield University Press.

Mann, William and Sandra Thompson. 1983. *Relational Propositions in Discourse*. ISI/RR-83-115. Marina del Rey, CA: Information Sciences Institute.

Mann, William and Sandra Thompson. 1987a. *Rhetorical Structure Theory: A Theory of Text Organization.* Technical Report ISI-RS 87-190. Marina del

Rey. CA: Information Sciences Institute.

Mann, William and Sandra Thompson. 1987b. "Rhetorical Structure Theory: A Framework for Analysis of Texts". IPrA: *Papers in Pragmatics* 1:79-105

Ricoeur, Paul. 1984-1988. *Time and Narrative* (three volumes), trans. By Katherine McLaughlin and David Pellauer. Chicago: University of Chicago Press.

Ricoeur, Paul 1991. "Life in Quest of Narrative", *On Paul Ricoeur: Narrative and Interpretation.* p.23-33. London: Routledge.

Weinrich, Harald. 1964. *Besprochene und Erzählte Welt.* Stuttgart: Kohlhammer.

TWO FOUNDATIONS FOR LINGUISTICS BRIEFLY COMPARED

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1. Not to Be Placed in the Defense of Error

Probably most today would agree with Galileo that in the natural sciences "one must take care not to place oneself in the defense of error" (Drake 1953:53-4). As you know, Galileo advocated observation and experiment in deciding what to believe about the natural world rather than a slavish adherence to the teachings of Aristotle. This lesson required a revolution in thinking. It was necessary, as Galileo said, "first to teach the reform of the human mind and to render it capable of distinguishing truth from falsehood, which," he added, "only God can do" (Drake 1953:57).

This revolution in thinking, led by Galileo and others, was instrumental in the flowering of the natural sciences. It has also been accepted, more or less, by the linguistic community, where careful attention is usually paid to the evidence of texts and informant responses. But linguistics has not flowered. Linguistic theory has been adrift for decades. As a discipline we do not know what to believe nor what body of theory to offer to our neighboring disciplines. We cannot even agree on what to teach our own students.

It is a major scandal that in the era of modern science we still retain the ancient semiotic-grammatical foundations inherited from Aristotle and the Stoics. Although real-world objects are available to us for scientific study such as sound waves and the people who speak and understand, we still study nonmaterial objects such as languages, utterances, words, and meanings, which do not exist in the real physical world, and this has placed us inevitably in the defense of error. We find ourselves in this unhappy situation partly through the force of tradition but mainly through the lack of any proper scientific alternative.

For over 35 years I have been laboring to develop real-world foundations for linguistics that do not place us in the defense of error. They are now available in a new book (Yngve 1996) and can be recommended without reservation.

For your convenience I will briefly present 17 points of comparison between these new foundations and the old. They are summarized in the appendix, which provides references to the chapters and sections of the book where they are discussed. I don't believe any version of mainstream theory can challenge any one of these 17 points and no other version of grammatical or semiotic theory can challenge more than a few. It seems to me that allowing even one or two of these points would be sufficient reason to consider adopting the new foundations.

2. How Do We Know What to Believe?

Let us start with the illusion of language. The old foundations follow the tradition in assuming that utterances, words, sentences, and languages somehow exist in spite of the fact that at least since Saussure they have been recognized as illusory.[1] Since the assumption of the reality of language and the objects of language is false, linguistics built on the old foundations leads us into the defense of error.[2] It leads to the proliferation of additional false assumptions, as an examination of mainstream theory and other grammatical or semiotic theories will reveal.[3]

The new foundations, however, recognize up front that language and the objects of language are illusory; that the relevant existing reality consists, instead, of the people who speak and understand, the sound waves of speech and other forms of communicative energy flow, and the real-world surroundings that often affect communicative behavior. A linguistics built on the new foundations needs no additional assumptions beyond the minimum standard assumptions underlying all science: that there is a real world out there, that it is coherent so we can find out something about it, that we can reason from true premises to true conclusions, and that from observed effects we can infer real-world causes. This is point 1 in the appendix.

The new foundations, not resting on false assumptions of the existence of words etc., do not lead us into the defense of error by the unscientific method of the explication of intuitive concepts (point 2). We are not led to search for criteria for wordhood, for example, and test them against some unexamined intuition of what a word is. We are not led to rationalize our false preconceptions stemming from illusions by this essentially philosophical method.

It comes down to the question of how do we know what to believe. With the new foundations we can use the standard criteria of science validated during the 400-year-history of the advance of modern science: The standard criterion of acceptance of hypotheses when doubts arise is the ability of their predictions to pass tests against the real world by means of careful observation and experiment. The standard criterion of acceptance of observational and experimental results is their reproducibility when questioned. The old foundations, since they rest on false assumptions, do not admit these criteria.

3. Scientific Laws and a Scientifically Justified Notation

The new foundations allow us to formulate three underlying empirically established general laws of communicative behavior (point 3). The law of componential partitioning justifies our treating people and groups linguistically as systems described in terms of properties. The law of small changes and the law of restricted causation characterize the general structure of these systems and justify setting up scientifically testable specific dynamic causal laws of communicative behavior (point 4).

The traditional foundations do not admit any scientifically testable laws of any sort. Specifically, rules of grammar do not have the status of scientific laws in spite of false allegations to the contrary. In fact, no other foundations for linguistics have ever been scientifically justified. Anyone who thinks otherwise is invited to show how.

The scientifically testable specific dynamic causal laws available with the new foundations make possible a scientifically justified notation (point 5). This is the only linguistic notation that is scientifically justified. All other grammatical, semiotic, or cognitive foundations, if they feature a notation at all, introduce it ad hoc based on the special assumptions of that brand of linguistics. Such notations often become symbols or trademarks for that brand of linguistics and for its leader. Since the notation cannot be scientifically justified, nonscientific appeals are used, appeals such as allegiance to a tradition, to a school, or to a personality, or perceptions of conventional wisdom or the latest vogue. On the new foundations, such appeals are unnecessary. No loyalty to any school of linguistics is asked, only loyalty to standard science and to our common cooperative endeavor of advancing our scientific knowledge.

4. Unified Treatment of the Context

The new foundations make possible a unified treatment of phenomena usually seen as syntactic, semantic, or pragmatic (point 6). This unified treatment is made possible by the built-in ability of the new foundations and the scientifically justified causal laws to handle the all-pervasive influence of the dynamically changing context, including what has been called the context of situation (point 7). This possibility is formalized in the new notation, which is computable so that proposed complex linguistic models can be tested against observed complex behaviors. The tradition usually treats context only in terms of the surrounding words and grammatical structures, usually limited to one sentence. Attempts are sometimes made to take the context of situation into account by the dodge of artificially textualizing it.

The new foundations, since they focus on people, individually and collectively, and what they are doing, also allow us to formalize the embedding of linguistic tasks in the nonlinguistic tasks they serve to coordinate. This is point 8. Traditional treatments usually entirely ignore nonlinguistic tasks and their coordination by linguistic tasks.

5. The Implications of Two Orders of Theory Rather than One

Moving on to another issue, the tradition has vacillated between focusing on language as perfect only in a collectivity (e.g. Saussure 1916:30; 1959:13—14) or focusing on an ideal speaker-hearer who knows his language perfectly (e.g. Chomsky

1965:3). Is language social or individual? With only one theory, grammar, how can we do justice to both social phenomena and individual phenomena, which are different? The new foundations do not deal with language or with idealizations of perfection at all. These are nonscientific holdovers from ancient Greek philosophy and the normative tradition. The new foundations provide the needed two orders of theory, individual and social, for the two orders of observed phenomena, and there is a theory of the interrelation of the two. This is point 9.

Inherent in this is a scientifically justified treatment of the relevant physical environment, including the sound waves or other means of communicative energy flow. This is point 10. Also included, therefore, is an integral scientifically justified treatment of writing (point 11). Writing is typically ignored by modern grammatical theories.

The availability of systems that model individuals interacting in small groups of all sorts, together with a built-in means for treating the context of situation, makes possible a scientifically justified treatment of interactive and discourse phenomena. The treatment of context also makes possible a scientifically justified approach to literary and rhetorical phenomena, including metaphor. This is point 12.

The facilities provided by the new foundations also make possible the treatment of the linguistic development of the child in the context of the family and the community (point 13). The tradition would have it that it is language that develops, not the child.

And with the treatment of development we can also have a scientifically justified treatment of variation in the individual taking into account the social situational context in an integral way. There is also the possibility of the separate treatment of variation in the community, which reflects separate and in part different phenomena (point 14).

Stemming from the treatment of developmental and of variational phenomena comes a scientifically justified treatment of linguistic change in terms of changes in people. Linguistic change has at least since the neogrammarians been recognized as really changes in people, although the tradition continues stubbornly to treat it as changes in language (Osthoff and Brugman 1878:iii) (Lehmann 1967:198, 204). This is point 15.

With the successful treatment of all these phenomena, the new foundations provide an understanding of the actual source of the powerful illusion of the reality of language, words, sentences, meanings, and the like (point 16). So instead of assuming with the tradition that these illusory objects are real, a linguistics built on the new foundations is actually capable of explaining scientifically why these illusions develop and what their communicative function actually is.

Finally, point 17, there is an ability of linguistics built on the new foundations to interface easily with other sciences—social, psychological, and biological. This allows linguistics actually to fill its long-recognized natural place bridging between the social and the psychological sciences thus grounding the social sciences and connecting them ultimately to the lower-level physical sciences and completing the hierarchy of the sciences.

6. Should One Accept the New Foundations?

In discussing these 17 points of comparison, I have not compared the new foundations with any particular brands of linguistics. That should best be done by those who know them best. I understand there is a natural reluctance to question one's own pet theories lest they prove insupportable, but may I suggest that you take a deep breath and check out your own favorite theory against this list. I will be glad to help in this if I can. I have done everything possible during the last several decades to ensure the adequacy of the new foundations.

I also understand that it takes courage to challenge the widely revered semiotic-grammatical tradition, but perhaps not as much courage these days as Galileo displayed in challenging the widely revered authority of Aristotle. That required a revolution in thinking, the reform of the human mind to render it capable of distinguishing truth from falsehood. The result of that revolution was modern science.

So in considering whether to abandon the old foundations for the new, please remember that these new foundations are not mine; they are yours if you wish to help move linguistics into modern standard science. They are yours if you decide to accept only the standard assumptions of all science and the standard criteria of science in deciding what to believe about nature and if you wish to take care not to place yourself in the defense of error.

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NOTES

[1] Saussure exclaimed in his notes published in the critical edition of his *Cours* that the illusion of things naturally given in languages is profound (Saussure 1967:24-26).

[2] Leonard Bloomfield, recognizing explicitly that a grammatical linguistics could not be scientific at its core, introduced his famous fundamental assumption of linguistics (Bloomfield 1933:78), which he admittedly knew to be false.

[3] For example, Noam Chomsky in his recent publications begins with a number of implicit and explicit assumptions for which he provides no scientific justification. In fact they cannot be scientifically justified and are probably all false.

APPENDIX

The following is a checklist you may wish to consider in planning your own future research. It lists some of the points where resting one's research on previously available linguistic foundations leads one inevitably into the defense of error. In each of these points the new foundations would help avoid this and would also offer other significant advantages. I invite you to check out your own favorite theory against this list. The chapter and section numbers refer to places in the book where these points are discussed. If you need help, please let me know. I don't believe any version of mainstream theory can challenge any one of these points and no version of grammatical or semiotic theory can challenge more than a few. It seems to me that allowing even one or two of these points would be sufficient reason to consider adopting the new foundations. The new foundations offer:

(1) No assumptions beyond the minimum assumptions underlying all science (grammatical and semiotic theories all rest on various unjustified assumptions). See §1.7, §1.8, §1.9, §3.5, §3.6, §6.3, §6.7, and chapter 8.

(2) No reliance on the unscientific explication of intuitive concepts (grammatical and semiotic theories all rest directly or indirectly on philosophical methods of the explication of intuitive concepts). See chapter 6, especially §6.2 and §6.4.

(3) Three underlying empirically established general laws (no general laws available in grammatical or semiotic theories, in fact no scientific laws at all). Chapter 11, especially §11.2; and chapter 12, especially §12.4 and §12.6.

(4) Scientifically testable specific dynamic causal laws (not available in grammatical or semiotic theories, where rules of grammar do not have the status of scientific laws). Chapter 12, especially §12.7.

(5) A scientifically justified computable notation applicable throughout general linguistics (not available in grammatical theories, where there are many notations to choose from but none is scientifically justified). §9.2, chapters 13, 19, and 20.

(6) A unified treatment of syntactic, semantic, and pragmatic phenomena (not available in mainstream theory). Throughout the book, especially chapters 19, 20, 21, and 22.

(7) Formalization of the dynamically changing situational context (not available in grammatical theories, which can formalize context only through the static surrounding text, and generally only within the scope of a single sentence). Chapter 1, §7.2, §11.5, §11.6, §12.2, §12.7, §13.2, §13.4, chapters 19, 20, 21, and 22.

(8) Formalization of the embedding of communicative behavior in nonlinguistic tasks (not available in mainstream theory). Chapters 1, 7, §9.4, §14.5, §18.5, chapter 20, 21, and 22.

(9) Separate scientifically justified orders of theory at the individual and group levels and a theory of the interrelation of individuals, groups, and communities (not available in grammatical or semiotic theories, which have only one order of theory, grammar). Chapters 7, 10, 14, 15, 16, 17, and 18.

(10) An integral scientifically justified treatment of the relevant physical environment (not available in mainstream theory). Chapter 1, §7.2, §7.4, §9.4, §10.6, §15.2, chapter 16, §17.5, §17.6, §17.7, and chapter 22.

(11) An integral scientifically justified treatment of writing (not available in mainstream theory). §17.8.

(12) A scientifically justified approach to interactive, literary, rhetorical, and discourse phenomena (not available in mainstream theory). §7.3, §7.4, chapters 16, 17, 21, and 22.

(13) A formalizable and testable treatment of the linguistic development of the child in the context of the community (not available in mainstream theory). §7.7 and §21.8.

(14) Separate treatment of variation in the individual and in the community (not available in grammatical theories). §7.6.

(15) Historical change treated as changes in people (not available in mainstream theory). §7.8.

(16) Insight into the illusion of language (not available in mainstream theory). §1.7, §3.5, and §22.9.

(17) The ability of linguistics to interface productively with other sciences and to fill its natural place in the hierarchy of the sciences thus grounding the social sciences and connecting them ultimately to the lower-level physical sciences (not available in grammatical or semiotic theories). §7.1, §13.7, §13.8, §14.6, and §18.6.

Since these points are all closely interrelated, it would be most efficient to work carefully through the book as a textbook chapter by chapter paying close attention to the concepts and terminology, and then use the checklist for review.

REFERENCES

Bloomfield, Leonard, 1933. *Language*. New York: Holt. [Reprint. Chicago: University of Chicago Press. 1984.]

Chomsky: Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge: MIT Press.

Drake, Stillman. 1953. tr. Galileo Galilei. *Dialogue Concerning the Two Chief World Systems – Ptolemaic & Copernican*. Berkeley and Los Angeles: University of California Press.

Lehmann, Winfred P. 1967. *A Reader in Nineteenth-century Historical Indo-European Linguistics*. Bloomington: Indiana University Press.

Osthoff, Hermann, and Karl Brugman. 1878. *Morphologische Untersuchungen auf dem Gebiete der indogermanischen Sprachen*. Pt. 1. Leipzig: S. Hirzel.

Saussure, Ferdinand de. 1916. *Cours de linguistique générale publié par Charles Bally et Albert Sechehaye avec la collaboration de Albert Riedlinger*. Lausanne: Payot. [citations from 5th edition. 1955.]

Saussure, Ferdinand de. 1959. *Course in General Linguistics*, translated by Wade Baskin. New York: The Philosophical Library. [Reprint. New York: McGraw-Hill, 1966.]

Saussure, Ferdinand de. 1967. *Cours de linguistique générale*. Edition critique par Rudolf Engler. Wiesbaden: Otto Harrassowitz.

Yngve, Victor H. 1996. *From Grammar to Science: New Foundations for General Linguistics*. Amsterdam/Philadelphia: John Benjamins.